

THE MAGAZINE for TANDY Computer USERS

Softgold

JULY 1987

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CONF'87

WHAT'S ON THE BEST OF CoCoOz

Best of CoCoOz #1. EDUCATION

ROADQUIZ ROB WEBB
 SHARE MARKET ALEPH DELTA
 HANGMAN ALEPH DELTA
 AUSTQUIZ P. THOMAS
 ALPHABET RON WEBB
 SPELLING TUTOR IAN LOBLEY
 TASK ADDITION DEAN HODGESON
 FRACTION TUTOR ROBBIE DALZELL
 TABLES BARRIE GERRAND
 ICOSA BOB WALTERS
 KIDSTUFF JOHANNA VAGG
 TAXMAN TONY PARFITT
 FLAGQUIZ ROB WEBB

Best of CoCoOz #2 part 1 16K GAMES

PYTHON V. ARMSTRONG
 COCONIND STEVE COLEMAN
 POKERMAN GRAHAM & MATTHEWS
 OILSLICK JEREMY GANS
 SPEEDMATHS DEAN HODGESON
 CCNETBOR BOB THOMSON
 BATTACK JEREMY GANS
 SKIING JOSHUA GANS
 PROBDRICE BOB DELBOURGO
 RALLY TONY PARFITT
 CHECKERS J & J GANS
 POURDRAV JOHANNA VAGG

Best of CoCoOz #2 part 2 32K GAMES

TREASURE DAVIDSON & GANS
 SHOOTING GALLERY TOM DYKEMA
 MASTERNIND GRAHAM JORDAN
 GARDEN OF EDEN DAVE BLUHDORN
 ANESTHESIA MIKE MARTYN
 YAHTZEE KEVIN GOWAN
 OREGON TRAIL DEAN HODGESON
 BATTLESHIP CHRIS SIMPSON
 ADVENTURE + STUART RAYNER
 ANDROMEDIA MAX BETTRIDGE
 LANDATTACK ALDO DEBERNADIS

Best of CoCoOz #3 UTILITIES

SCREEN PRINT TOM DYKEMA
 RAMTEST TOM DYKEMA
 PRINT SORT PAUL HUMPHRIES
 BRAUTY BOB THOMPSON
 DATAGEN ROBIN BROWN
 PCOPY BRIAN DOUGAN
 FASTEXT OZ-VIZ
 MONITOR + BRIAN FERGUSON
 COPYDIR THOMAS SZULCHA
 LABELLER FRED BISSELLING
 SPEED CONTROL PAUL HUMPHRIES
 2BC WARREN VARNER
 CREAT-A-TITLE BRIAN FERGUSON
 DISKFILE BRIAN DOUGAN
 BIG REMARKS BOB THOMSON
 LABELLER GORDON BENTZEN
 DIR MORRIS SINGER
 HI ALEX. HARTMANN

Best of CoCoOz #4 Business

HI ALEX. HARTMANN
 (disk; Disk Directory Manager)
 PERSMAN PAUL HUMPHRIES
 (Personal Finance Management)
 BANKSTAT BARRY HATTAN
 (Annual & Store Statement)
 CCS GRAHAM MORPHETT
 (tape; Sales invoicing)
 INSURE ROY VANDERSTEEEN
 (Analyse Home Contents)
 COCOFILE BRIAN DOUGAN
 (tape; database)
 DPMS PAUL HUMPHRIES
 (disk; Disk Program Management Sys)
 DATABASE PAUL HUMPHRIES
 (tape; THE tape database)
 RESTACC DUNG LY
 (tape; Restaurant Accounts)
 SPDSHEET GRAHAM MORPHETT
 (disk; 22 column spreadsheet)
 PRSPDSHT GRAHAM MORPHETT
 (disk; print out "SPDSHEET")
 ACS3 GREG WILSON
 (disk; Multi disk database)

Best of CoCoOz #5 ADVENTURES

ADV 32K S. RAYNER
 QUEST TONY PARFITT
 LABYRINTH JAMES REDMOND
 ADV + SEAN LOVE
 CRYSTAL C & K SPRINGETT
 PRISON TIM ALTON
 OPALTON IAN CLARKE
 WIZARD DARRELL BERRY
 TREASURE C. DAVIDSON
 LOST ALEX. HARTMANN

Best of CoCoOz #6 PRESCHOOL

ALPHABET STUART DAVSON
 HAYDANCE JOHANNA VAGG
 AUSTSOBG McDERMOTT FAMILY
 ADVANCE McDERMOTT FAMILY
 VALTZING McDERMOTT FAMILY
 TIMEKARG McDERMOTT FAMILY
 BAND McDERMOTT FAMILY
 KIDSTUFF JOHANNA VAGG
 WATCHER ?
 LETTERS JACK PINNEN
 BABYSIT JOHANNA VAGG
 SPELLING JOHANNA VAGG
 SPEEDTAB DEAN HODGESON
 10 FACES JOHANNA VAGG

Please Note : Some of the
 programs on Best of Cocooz # 3
 and #4 will not work on the
 Coco 3.

Best of CoCoOz #7 GRAPHICS

LIL'COCO ANDREW WHITE
 THE ROOM HERMANN FREDRIKSON
 BACK STREET JOY WALLACE
 LOCO MIKE D'ESTERRE
 COCO ART SANDY McGREGOR
 KANGA JOHANNA VAGG
 THE BOAT SANDY McGREGOR
 SAD COCO P. BOLLE
 TOVER C.A. SYMS
 WINDY DAY SARAH LAY
 SAILING STEVE YOUNGBERRY
 OUTHOUSE STEVE YOUNGBERRY
 SKURF JOHANNA VAGG
 SUNSTATE STEVE YOUNGBERRY
 HELICOPTER ANDREW WHITE
 MARTHA ANDREW WHITE
 BAD MOON STEVE YOUNGBERRY
 MCC JOY WALLACE
 EAGLE ?
 BLASTER PAUL YOULD
 FOGHORN PAUL STEVENSON

Best of CoCoOz #8 16K GAMES

ALIEN STUART SANDERS
 QVERL DARRELL BERRY
 SHOOTOUT CRAIG STEWART
 SHUTTLE CRAIG STEWART
 FROG DARREN OTTERY
 FROGRACE TOM LEHANE
 KIMMAT TOM LEHANE
 GRANDPRI DOUG GREY
 WATER WARS JUSTIN LIPTON
 CATERPILLER JUSTIN LIPTON
 DETECTIVE VAL STEPHEN
 BREAKOUT WHY/BILT

Best of CoCoOz #9 32K GAMES

TRIONIMO BOB DELBOURGO
 MATCHEM CHARLES BARTLETT
 GO BOB DELBOURGO
 MARZOD MAX BETTRIDGE
 CHOMPER MAX BETTRIDGE
 POPBALL MAX BETTRIDGE
 LUDO WHY/BILT
 SABRE ANDREW SIMPSON
 MOVABOUT KEVIN GOWAN
 JIGSAW JAMES REDMOND
 LABYRINTH JAMES REDMOND
 TANK CRAIG STEWART

Best of CoCoOz #10 Education II

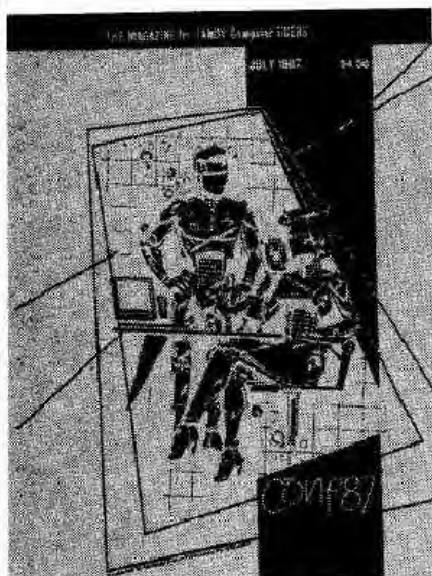
METEOR DEAN HODGESON
 DRIVERS TEST ANDREW SIMPSON
 SALE JUSTIN LIPTON
 TABLES PAT KERNODE
 OPALTON IAN CLARKE
 CAPITAL LETTERS BOB HORNE
 TEST MATCH JEFF SHEN
 SENTENCE ENDINGS BOB HORNE
 ESCAPE DEAN HODGESON
 RAILMATH BOB HORNE
 COUNTDOWN DEAN HODGESON
 WHATZIT BOB HORNE
 HOMOPHONES BOB HORNE
 COMPOUND WORDS BOB HORNE

Best of CoCoOz #11 Education III This is a DISK only issue!!

CHATVIN MANOR BOB HORNE

TAPE \$16 each

DISK \$16 each



With Conf'87 only weeks away our cover emphasises the advanced world we live in and the possibilities for fast, useful communications.

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WHO IS THIS MAGAZINE FOR?

This magazine is for computer users - especially users of Viatel, Tandy Colour Computer users, Tandy MC-10 computers, Tandy 1000 and 2000's and IBM PC's and compatibles.

WHO PROVIDES THE MATERIAL IN THIS MAGAZINE

The readers of this magazine supply the information you will find here. All of it has been volunteered and remains the property of the individual authors.

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Clubroom

Of Moves and Phones and Things.

Well after a month of relative tranquility, I guess I'll have to tell you the new phone number of Goldsoft - although I have to admit it's been lovely & peaceful without the phones!

Okay I'm getting there... the number is 075 39 6177.

And the address for those who missed it last month is 26/207 Currumburra Rd., Ashmore. Qld. 4214.

The postal address remains the same - PO Box 1742 Southport, Qld. 4215.

The move put me in mind of that first move when we brought the mag from Sydney up here in July 84. Some of the work we did at that time was uncovered as we 'deconstructed' our office!

I well remember being up at 2am one morning laying carpet - this move - you guessed it - I was up at 2am laying carpet again! And with Kevin Mischewski - because displaying immaculately poor timing, Kevin turned up a day or so before the move - after returning from upper Chile or somewhere, and helped us move!

In 1984, Kevin did a lot of the work associated with that move too.

Anyway, we're in. We have a lovely space to work in, and we'll be able to expand here to encompass some of the new plans we have for the coming year.

Call in and see us - you're always welcome! (Although you'll

have to excuse Alex & me around mag making time - we tend to get preoccupied!)

Conf'87.

There is news further in in this mag regarding Conf '87 so I won't preempt what is said there except to urge you to attend.

Even if you don't own a Tandy computer, Conf is a great place to pick up on your knowledge of computers.

We're featuring a whole range of new & interesting things this year, and the really exciting products just being released by Blaxland will be there too.

All good stuff, come along!

MC-10 Programs.

The tenacious bunch of people who send programs for this little computer both from Australia & from the United States will be pleased to know that we intend to continue to support this computer for at least another year.

Such support for other discontinued computers is unknown and underlines the confidence you can feel when you purchase a Tandy computer. Support is there - even after a Tandy computer is discontinued!

Never the less, we ask MC 10 programmers to, where possible, remember the needs of their CoCo owning comrades.

Many MC 10 programs can be made so that they are quite compatible with the CoCo, and this is something we are looking for more often in a MC 10 program.

Conversely, CoCo owners should not be reticent to type in a MC 10 program. Many times the program will work. Sometimes it won't.

If it won't, find out why it won't work and fix it.

In most cases the fix won't be hard, but you'll learn heaps in the process.

At Last, New Software and Hardware for the CoCo 3!

Many of you have been whinging that there is no software for the CoCo 3.

Now that Blaxland has responded to your cries for help, please don't leave them in the lurch.

I've been there & it's not a nice feeling!

The guys at Blaxland have

spent a small fortune getting this material over here from the US, and personally I think they have taken too great a risk.

It's very easy to whinge, but most whingers don't follow through when someone does something for them!

So it's up to you. You want to see more CoCo 3 software? Well buy what is being offered to you now, because I can assure you that it's a fairly simple equation - no sales this time round, no more new software!

And whilst I'm at it, well done Blaxland! You're braver men than we are!

Whilst on the subject of whingers, there are four suppliers who have stuck with you (five I suppose if you count us), right from the start just about.

One is Computerware for Micros, the next is Blaxland, the next is Computer Hut and finally there is Paris Radio.

Loyalty is a much bandied word, and I've noticed another thing about whingers, they don't usually have much loyalty, but these four businesses all deserve your loyalty.

Like us, none of them started with wads of money.

We've all had to build our businesses to the point where they would pay, in a situation where normal businessmen would have given up - because you have to love the computer or Tandy, to stay.

Despite what the whingers say, none of us is making anything other than a bare living out of the things we do.

But we do it because we believe in the product and we enjoy the people we meet in the business.

In fact for me personally, it is the people who have kept me here. Frankly I enjoy you all.

But we need to live, as do your other suppliers. And you can help. Just support the people who support you!

As Tandy products become more & more popular, no doubt you'll see more new faces amongst the suppliers, but don't forget the ones that have held your hand thus far.

Users' Groups.

I received a long and interesting letter from Ken Spong this month.

Ken has been the contact at

Yarrowonga in Victoria, and he recently moved to Marlborough, New Zealand. (We're hoping he'll consent to being a contact there for us soon!)

Ken included some interesting news:

"Hands up those of you who have experienced disc system problems. Can't see you for all the arms! Thought I had the lot licked .. twin Mitsubishi DSDD 40T drives with custom case and power supply, and a well used rubber for those abominable controller contacts. Well I thought I had....

I moved to New Zealand with my CoCo and attachments, you know, the usual ones - wife, children etc - and on setting up found the system didn't work!! Horror, was it the move, was it the milkman?

Frankly, I didn't have a clue. I tried everywhichway.

Phoned Ron W. (everyone's backstop! G.). "Send it to Tandy". Did that, and some five weeks later a controller arrived back complete with seal saying the usual bit about "void warranty if broken".

Apart from the disgraceful claim by Service that the Controller was made up of spare parts, it still didn't work (the controller was actually from Tandy's Spares div complete).

I was running short of hair by this stage. The rubber was on its last legs, and the seal was no more.

Reason has to be obvious, in hindsight.

I borrowed a digital multimeter and checked the voltage to the 5 volt rails. Whereas my dial meter showed roughly 4.6 volts, I found a reading of 4.45 volts on the dig. meter.

How come?

Answer: The voltage supply here is commonly 230V, dropping as low as 210V, and certainly no higher than 245V for any period apart from spikes (boy am I glad I have a filter!). (Sounds like Queensland! G.)

It appeared that the drives were needing better than 4.45V on the 5 volt rails to operate consistently.

Solution was to move the 5V power supply secondary tap to a higher voltage tap on the transformer. I now have a trouble free system.

In the interim, I took the advice of a very cluey ex-Tandy serviceman here and soldered



Joe Hester, George Francis & Leigh Dawes posing for the local Morwell newspaper!

together all the earth return leads on the controller cable and connected via lead to a definite earth within CoCo.

The effect seems to be reduced interference and the avoidance of "cross talk" in the cable.

So if any of you are having problems you can't sort out, take heart, it can only get better, its only a question of WHEN!"

In other news, Sean Murdoch of Bringelly is starting a group in the Camden - Bringelly - Penrith area.

If you'd like to be a part of that group, Sean's number is in the list of contacts this month under Camden.

The Latrobe people continue to go through many changes.

The latest is that Jeff Sheen has taken the reigns in the Morwell club, leaving George Francis to be the group's "overseer"!

Recently George, Joe & Leigh featured in the local paper, and were the focus of excellent publicity for the club.

The Port Noarlunga club continues to flourish under the firm control of Robbie Dalzell.

This group would have to be as old as any in the country, being established soon after the release of the original 4K CoCo.

Mind you, Robbie was only a boy then.....

Finally, for this month, the latest OS-9 Users' Group Newsletter attests to the

excitement Level 2 is creating in the CoCo community.

The CoCo 3 was designed for this system, and when you see it operating under OS-9 Level 2 you can understand what all the fuss is about!

Graeme Nichols does a superb job of getting all the info out in the newsletter - we're hoping he'll let us use some of the group's material soon - and I'd certainly suggest that if you decide you want to have a go at OS-9, that you join the OS-9 group as a first step.

Modem Packages - Sorry!!

What can I say - we introduced new modem packages last month & we've been severely embarrassed by the number of orders received!

First it was the modems themselves, then the software, then finally, we just could not get sufficient cables!

Well as we went to press, we finally got it together - well for a while at least!

We apologise, we should be right this month!

Viatal - The Party.

I won't steal SWAN's thunder by saying much about our latest Viatal Bash - but I will say that I personally have not had so much fun for a long while!

Mind you, when you have Karen and friends staying at your place, cackling until 5 in the morning, its not exactly

something which you'd want to do all the time! But it has been fun, and to those who traveled from Adelaide, Melbourne and Sydney I say thank you for coming up, we really enjoyed your company.

The next Bash we host will be a small one in Sydney in August, the weekend AFTER the conference; and we'll follow that up with one in November in Adelaide, and then bashes in Melbourne and the Gold Coast around Christmas time.

The Christmas Bash on the Gold Coast should really be something. We're planning THE beach party to end them all!

Some of our traditional readers I know read the Viatel pages with a somewhat bemused attitude. But why not come along to the next bash. A number of you have joined us in the past, and these people always come back for more! Its fun, its lively and there's always something to see or do at a Goldlink Bash!

Speaking of Adelaide.

Adelaide we're coming! Despite requests to the contrary, as announced I'll be in Adelaide at about the time of the GP.

In fact at this stage we expect that Ken Allen, until recently Tandy's Computer buyer, and man most closely associated with the CoCo 3 project in Australia, will be there too. So I'm hoping that we can organise a meeting or two with the users' groups in the area.

As time progresses, I'll announce firmer plans, but if you are a contact in SA and would like to get your group involved, please let me know.

I'll be phoning the contacts in SA about this later in the month.

The Tandy 1000.

Almost by definition, people who purchase Tandy 1000's or IBM PC's or IBM PC clones, tend to have interests which lead them away from the traditional areas of support that this magazine

has maintained for Tandy users over the years.

What we would like to do is to find out what you as a T1000 owner need from this magazine.

Of course we also need an article from you occasionally too!

The magazine has always depended on the users to provide the material in it, and this is especially so for the T1000.

We use a T1000 here, but we don't get to program on it much and we tend to use essentially the same programs month in, month out, on it.

Is this normal? What do you do with yours? Do you have problems running software that is supposed to run sweetly on it? If you have a T1000 SX or EX, how is it working out? Is the computer serving your needs?

All this and more is stuff we'd really like to know!

The Tandy Store Award.

The Tandy Store award goes this month to the store at Modbury in South Australia.

Paul Clarke is the manager there and he has an enthusiastic

group of people who support him.

We get letters about this store so we know how valued Paul's work is in the Modbury area.

So Paul, Jim, Garath and Jenny, well done! You have the Goldsoft Tandy Store Award for this month!

STOP PRESS!!!STOP PRESS!!!

As we went to press, Tandy was distributing OS-9 Level 2 to their stores!

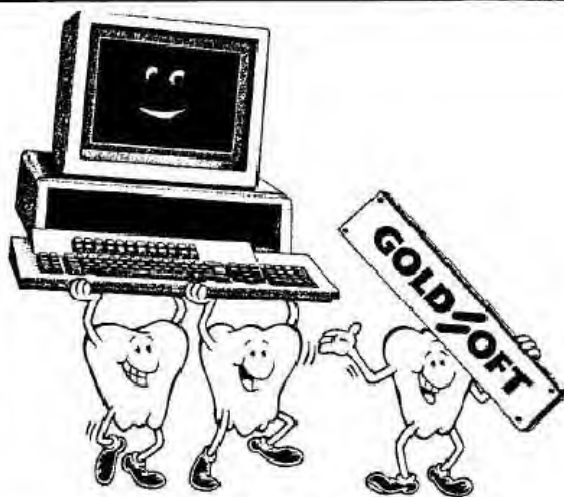
It is expected that all stores will have stock by 1st July.

Graham



Paul, Jim, Garath and Jenny from Tandy's Modbury store.

WE'VE MOVED!



GOLD/0FT

has moved to ...

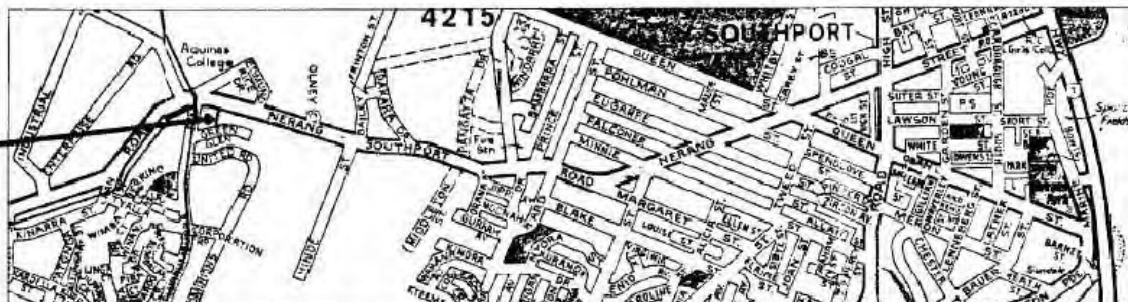
26/207 Currumburra Rd.

Ashmore QLD. 4214

Our new Phone number is ...

(075) 39 - 6177

WE
ARE
HERE.



Please note that our postal address remains P.O. BOX 1742. SOUTHPORT, QLD 4215

Feedback

LETTERS

NEED HELP? Write to Graham, to Dr CoCo or leave a message on Viatel and we'll do our best to answer your enquiry in these columns as soon as possible.

Dear Graham,

I am writing to you for help and information. My mother bought me a CoCo 3 (128k) for Christmas from Tandy. Whenever I go back there and ask for programs for it, they keep telling me they will be out in the next six weeks. I go back after 6 weeks and still nothing.

I was wondering if there was a club I could join, which has a library for CoCo 3's, and if there were any more information on them, like is it compatible with the IBM's or PC's, does it use the same machine language as the PC, does it link up with databases CTC, etc

I am very interested in computers and need a Basic program to teach me how to use the computer. I am terrible when I try to learn from a book - actually I'm hopeless!

I work in the fire brigade and I am looking for a portable computer that I can work on in my spare time. Can you give me any information on any computers that have the same machine language with the 128K and fit into a briefcase and works on batteries.

I'm sorry I'm asking so many questions but I feel a little in the dark, especially when I want to be interested in computers and the salesmen don't have any information for me.

Craig Richardson
Yarra Junction, VIC

Craig,

Fortunately, the CoCo does not run on MS-DOS. It's actually better.

Files from the CoCo can be transported to the MS-DOS environment using a program called "CoCoUtil" which is available from Computer Hut Software.

Programs for the CoCo 3 have been slow in arriving due to the delayed release of the OS-9 level II package, but as you can see from this issue, Blaxland Computer Services have quite a range of software available now.

The best way for you to learn about your computer is to join a

User Group. I'd suggest you contact the Ringwood group in Melbourne or the Frankston group and they could well be able to assist you further. There is no portable 6809 based computer on the market place to my knowledge, although such a beast would certainly be very exciting to own.

The closest we can suggest would be one of the portable MS-DOS based computers or perhaps the Tandy 200. Neither of these alternative would be as much fun or as powerful as your CoCo.

Your questions are very welcome, we love to hear from people with these sorts of enquiries.

Graham

*

Dear Graham,

Regarding your "Trading Post" - I had success in selling the 4 slot expansion pak you have been advertising for me. Many thanks, the service gets the message to people very effectively.

Steven Tatham
Bombala, NSW

Steven,

Thank you very much, you've made Martha's day!
Graham

*

Dear Graham,

I have a complaint.

On the "Best of CoCo" #5 - "Adventures" there are no instructions on HOW to play the games. I mean it is bit hard to play games such as these without knowing the commands used or the manner in which one is to accomplish the object of the game, or even as with Labyrinth what the object of that is!

I'd appreciate it if you'd send me a copy of the instructions for these programs. I realize they are in the relative issues of CoCo. However, I don't have other than this years mags.

David Phillips.
Eagleby, QLD

David,

It is possible that you may have an early version of this tape which does not include written instructions. If this is the case, please return it and we will upgrade your tape.

Half the fun with adventures is that you have to find out the kind of commands the computer will accept.

Graham

*

Dear Graham,

For the past two years I've been teaching myself programming on the 64K CoCo.

Three months ago I thought I finished a rather smart graphics quiz. That is, until I sought some constructive criticism from the Melton User Group.

The program uses inbuilt data statements. The suggestion was to make provision for user data loading.

It sounded like a good idea, considering it was meant to be an educational program. I also reasoned that I would also be able to insert questions on whatever subjects my daughter happened to be studying at school.

Two players take part, using a joystick each. Whoever reaches north on the joystick first answers the question. Then West will result in a "Yes", East is "No". Both players have to push a lever to the South to pass the question.

After so many questions they get bonus points; 10, 15 or 25 point question. All others credit 5 points.

Data statements are divided into 7 parts.

Part one decides if it is a bonus or normal question. It is done by variable "B" for bonus and "P" for normal points.

Part two is the correct answer to the question. It can be either a "Y" or an "N". "Y" = yes, "N" = no.

Parts three to five are the question, each consisting of no more than 27 characters. Any more will result in unreadable garbage due to the graphic text.

Parts six to seven consist of the answer. The 27 character limit still applies.

My problem is that I'm unable to get the program to read the loaded data from cassette, convert it to graphic and display it.

All I've managed to do is to output the data onto tape; input it from the tape and that's where my problem really starts.

So far I've discovered that the READ command can not be used.

I thought that perhaps one of your readers can assist me. I'm sure there has to be hundreds who can manipulate data and graphics out there, judging from the programs that appear in the magazine.

All help will be heartily appreciated.

Keep up the good work with your magazine.

Joe Chircop
Rockbank, VIC

Joe,

The appropriate section for you to read in your Tandy manual is the section on "Cassette Tape File Handeling". In the CoCo 3 manual a suitable program to store data is shown on page 181 whilst a program which retrieves that data is shown on page 182. The READ command is not required.

I'm sure that if you return to the Melton User Group that there will be someone there who can walk you through this process. If there is no-one there who can help you, contact the Ringwood group or Alex here at the office.

Graham;

*

Dear Graham,

When reading the March edition of Softgold Magazine, a statement was made by Nigel Barking ("Share Market"):

"Has any other user noticed that the CoCo 3 will sometimes put extra characters in the listings?"

Yes, I have experienced the same thing - and on some occasions I have lost the program because it would not list.

Anyhow our local Tandy store has changed the old CoCo 3 for a new CoCo 3 and so far the new CoCo 3 works well.

Well, keep up the good work as I enjoy both your magazines.

Arthur Williams
Harrington, NSW

Arthur,

This is fair dinkum, we discovered that a CoCo 3 which had been returned for service, and returned to us still faulty after service benefitted from a sharp bang on the table.

We dropped the computer from about 6 inches onto the table and ever since then it seems to have gotten the message!

The technical types will tell you that we probably settled the GIME chip in its socket, but I prefer to think that the computer believes that it's under threat of worse things if it doesn't perform now.

Graham.

*

Dear Graham,

As a new owner of a CoCo 3 but not a new computer buff, I wish to congratulate you on publication of two fine magazines. We have been buying CoCo for several years now and since our purchase of the CoCo 3 in October have included the Softgold Magazine on our shopping list.

My husband and I are very much beginners in computer programming and find typing in the programs an excellent way to learn. As we are unemployed, the purchase of the program tape for these magazines is beyond our present means. As I am a typist by trade, typing the program listings in is not a big problem.

My question is this: would it be possible to get a printed copy of the listing of the programs that occasionally are not included in the magazine and are only available on the program tape?

I don't feel the expense is justified to buy the tape for one or two programs.

We still haven't explored all the capabilities of the CoCo 3. We very carefully shopped around for two years for a computer and for the money found we could not go past the CoCo 3. We have an MC-10 computer that we started computing on and still use. The 14 year old daughter uses it to practice typing and put MC10 programs in. I am somewhat disappointed in Tandy's attitude to the MC-10. It is a fine learning computer and has lots of possibilities for development.

We (my daughter and I) follow our favorite programmers. Our current favorite is Max Bettridge. He must have some

unreal imagination and his use of graphics and sound in a program is always first rate.

I congratulate him for his first class programs and watch carefully for any other programs of his as they are always the first typed in. Our current set-up includes the CoCo 3, a CCR-81 cassette recorder, a DMP-105 printer and Scripsit program pak and Speech/Sound pak. We were told the Speech/Sound pak would not work on the CoCo 3 but it does. There just doesn't seem to be enough programs available that make use of it.

Our planned purchases for 1987 are disk drives, the 512K upgrade for the CoCo 3, a multipak interface, another printer (TP10), EDIASM, a printer selection and the EARS connection. Of course on our limited budget it will probably be 1988 before all this is reality.

I feel your program variety is excellent and hardly needs commenting on. On a personal level as a full-time nursing student, any science programs of a higher than primary level would be useful. There must be other tertiary students who would welcome some advanced science programs on biology or chemistry or physics.

Is there a screen dump to printer program using the DMP-105? I have tried modifying other screen dump programs but I just don't know enough yet.

This type of program would be useful to dress my essays with graphics cover pages.

Also could you please, please advise me of the proper start, end and exec addresses for "Tank Battle" in September '86 CoCo. I have tried a formulae to find these given in the hints section of the CoCo. But I get nowhere.

Maybe for us semi-beginners a short note before a program that this is needed to save the listing would be in order.

Until Leonie told me of this I was not aware that such a thing existed.

Finally can you tell me if there is a Penrith Users Group in existence? I have been to one of the productive Leonie Duggan and the Liverpool Users Group meetings but would prefer to join one closer to home. Our local Tandy dealer here in Penrith has been most helpful but it is better to be able to get assistance and feedback from

a fellow enthusiast after business hours.

Again my congratulations on two fine magazines and keep up the good work.

D. Collier
Penrith, NSW

As you can see from the current magazine, we have attempted to address the problem of previous months and we've printed most of the programs which were not printed in previous issues of Australian CoCo Magazine or Softgold Magazine.

Having two magazines and lots of space allows us to print everything on the tape/disk these days, which is wonderful for people like yourself.

The DMP-105 printer has had a number of screen dump programs written for it, but could I suggest that you seriously consider Colour Max as one of your near future purchases.

This program is a CoCo 3 colour version of CoCoMax which includes an ability to print pictures to the DMP-105. Colour Max will be available soon from Blaxland Computer Services.

The start, end and execute address for "Tank Battle" is 14624, 16382 and 14624 respectively.

Our good friend Tom Lehane, lives in Penrith as does Ken Allen. I'm sure if you approached either of these two "gentlemen" (inverted commas intentional), they'd be pleased to help you with your programming.

Finally I'm glad you've met Leonie Duggan. She's the leader of the hottest group of programmers in Sydney's west!!

Graham

*

Dear Graham,

I would like to make a suggestion - I think that CoCoOz on tape and Softgold on tape should be amalgamated together, ie CoCoOz on the one side and Softgold on the other.

I do not think this would create much of a problem but I feel more people would purchase the tape and buy both magazines.

Any profit/loss from only selling one tape would be compensated by the sale of more magazines and more tapes.

Peter Booth
Coffs Harbour, NSW

Peter,

That would work on tape, but when we transfer that concept to disk, we have difficulty.

The thing is, that already CoCoOz and Softgold on disk have run to "two disk" issues as they are, and to expand them further would involve changes to our system we're not prepared to make at this stage.

Obviously one day, if the CoCo ever loses popularity, it may be wise for us to consider producing just one magazine and one disk/tape for the CoCo.

However whilst there are so many people with such a diversity of interests using the CoCo there is a good, natural break between the subject matter Australian CoCo Magazine handles and the subject matter that Softgold Magazine handles.

When you consider that currently if you subscribe to either magazine, they will cost you less than \$3 each and that for your \$3 you get 20+ quality programs a month in each plus help plus product news plus hopefully some light entertainment, then I contend that in the area for value for money you're already doing pretty well.

The same logic applies to the tape which generally has 20+ quality programs on it, and which costs less than \$9 per month as a subscription. What other source of software is there that gives you so much for so little?

*

Dear Graham,

I am writing to you in an effort to find more information and programs for the CoCo 3. I bought mine just before Christmas and have been dismayed at the lack of suitable material available through Tandy.

Following the advice given I am writing to you for information on getting CoCo on Tape and any material explaining what is available for use with this unit.

Mr W. Brown
Richmond, NSW

Programs for the CoCo 3 have been slow coming but they are starting to emerge. The hold-up was basically the slow release of OS-9 level 11 for which this computer was built.

This month you'll find a wonderful new range of software for the 3 available from Blaxland Computer Services

advertised in this magazine.

This is just the beginning of what will eventually be a considerable quantity of software for the CoCo 3.

The Apple GS - a brand new computer with a brand new operating system released at about the same time as the CoCo 3 is suffering the same software hassles.

There is no substitute for time when it comes to producing software!

Graham

*

Dear Graham,

Softgold is an excellent magazine, especially for beginners like myself. Keep up the good work.

Peter Rokay
Duntroon, ACT

Peter,

I'm glad you enjoy Softgold Magazine, Peter. It's sometimes difficult to know what to put in a new user magazine such as Softgold so we are especially interested to hear from you, if you have any suggestions.

Graham

*

Dear Graham,

We recently purchased a Tandy 128K Colour Computer 3 with a disk drive.

We purchased the CoCo and Softgold magazines and found them very helpful as we are just starting to learn, so to my first question.

In the CoCo magazine you advertise games and other education disk for sale - will they run on a 128K CoCo machine?

S.J. & K.D. Harper
Raglan, NSW

Yes, most programs for the CoCo 2 will work on the CoCo 3 - often they look even better!

Graham

*

Dear Graham,

Firstly congratulations on the way the magazines are going. The content of them is great each month. They are a real credit to you.

The main reason for this letter now. A couple of months ago I bought a Brother M-1109 DMP. I bought it ahead of a

Tandy printer due to price and quality I felt I was getting for money.

However after weeks of attempts, I cannot get it to make a screen dump of anything, probably because of the instructions in the manual.

Not that they aren't good, just too technical for me. If anybody reading the magazine has had any success at all with similar Brother printers I would be pleased to hear from them.

It is really getting frustrating, for the print-style is fantastic, and is doing everything else I want perfectly.

Elton Wright
Boronia, VIC

Elton,

I understand your frustration, unfortunately this is the problem you face when you purchase a non-standard printer.

Graham

Dear Graham,

I'll be very grateful if you could help me.

Since I bought my CoCo 3 and

my DMP-105 printer I am working with numbers. The program with FOR-NEXT loops and IF-THEN decision is okay until I want to print it on the printer.

I cannot make two or three columns of it. I want to see a paper but almost everything failed.

When I used the below program it was okay to the third line when "F" had changed value to a two digit number.

Then everything moved to the right and the next line was printed from a different spot.

I don't know what to do!

The Program:

```
10 FOR A=1TO4
20 FOR B=2TO5
30 FOR C=3TO6
40 FOR D=4TO7
50 FOR E=5TO8
60 FOR F=6TO10
70 IF A<B AND B<C AND C<D AND
D<E AND E<F THEN 80 ELSE 90
80 PRINT#-2,CHR$(27)CHR$(85)
CHR$(1);" ";A;B;C;
D;E;F;" ";
90 NEXT F,E,D,C,B,A
```

Gerge Kaufmann

Gerge,

Because you are wanting to print single digit and double digit numbers together in the program, you have to make an allowance for them. The best way of doing this is to use the PRINT USING statement which is described in your computer manual.

The program would look like this with the PRINT USING statement in place.

```
10 FOR A=1TO4
20 FOR B=2TO5
30 FOR C=3TO6
40 FOR D=4TO7
50 FOR E=5TO8
60 FOR F=6TO10
70 IF A<B AND B<C AND C<D AND
D<E AND E<F THEN 80 ELSE 90
80 PRINT#-2,CHR$(27)CHR$(85)
CHR$(1);" ";:PRINT
USING"## ## ## ## ##";A;B;
C;D;E;F;" ";
90 NEXT F,E,D,C,B,A
```



SEEN GOLDLINK YET?

You can only access GOLDLINK on VIATEL if you have a videotex terminal program and a modem capable of operating at 1200/75 baud.

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Dear Dr CoCo,

I started buying CoCo Magazine in July and since I have grown a massive interest in my CoCo 2 64K ECB.

One particular program called "Shootout" in the September issue has been giving me the real \$#!"%@# as I have spent hours typing it and checking it to no avail. I just cannot get it to "go". Can you help me?

Michael Tait

Tamworth, NSW

Dear Michael,

The procedure to make "Shootout" 'go' is this:

- First type in the listing and check it.

- Before RUNNING the program, save it first.

- Next, RUN the program and prepare the tape player to record.

- Press <enter> at the prompt, and the tape will save another version of the game (a machine language version of the program).

- Turn off your computer, turn it on again and load in the program you last saved using CLOADM.

- Once loaded, type in EXEC and you're in business.

*

Dear Dr CoCo,

I am interested in knowing how to use PEEKS and POKES and how to use the joystick to move things around the screen.

Do you know of any good books on the subject? I have a Tandy 64K Colour Computer with ECB.

Robert Mills.

Robert,

PEEK and POKE are another way to get or store information inside your computer. PEEK is used to get information and POKE is used to store information. Let's use a practical example.

If I wanted to find out (from a software point of view) whether my CoCo was attached to a disk controller, I would type in PRINT PEEK(49152). If the result is '68', then the computer is connected to a disk controller, and if the result is something else then the computer isn't.

The syntax for PEEK is PEEK(x)

where 'x' is any value between 0 and 65535.

POKE, on the other hand, is another way to store information in the computer, as mentioned above. Let's use another practical example:

I have a printer that runs at 2400 baud only, but my computer isn't set up for the baud rate my printer runs at, so the logical solution would be to get my computer's baud rate up to a level where the two can understand each other (ie, the printer will print what the computer tells it to.)

My answer would be to type in POKE150,41. This is the POKE to set the baud rate of the computer to 2400.

The syntax for POKE is POKEx,y. 'x' is any value between 0 and 65535 and 'y' is any value between 0 and 255.

Next subject: Moving things around on the screen using a joystick.

The joystick can be read in four different ways: up, down, left or right, for both left and right joysticks.

To move something left and right, I would type in J=JOYSTK(0).

To move something up and down from the left joystick, I would type in J=JOYSTK(0):J=JOYSTK(1). (You have to read the first joystick in always, if you want to read any other joysticks.)

To put this in a practical situation, type in this short program. All it does is move a small red dot around a black screen.

```
10 CLS0
20 J1=JOYSTK(0)
   J2=INT(JOYSTK(1)/2)
30 SET(J1,J2,3):GOTO20
```

The best book for this type of information would be your manuals you get with the computer, or, from Tandy if you don't have the manuals.

*

Dear Dr CoCo,

I have a TRS-80 Colour Computer. I received two copies of the Australian Rainbow Magazine - one was the November 1985 edition and the other was the September 1985 edition.

In the November edition there was a program called "Zonx" from

David Billen. The problem is all it does is say "Ready Recorder/Press ENTER".

What does it mean? When I RUN it, it says the same thing again and when I EXEC it, it plays.

Can you help?

In the September 86 edition there was a great game called "Starlord". It gave me an FC error in 30. We typed in what it said to type in (which was POKE25,57:POKE14592,0:NEW) but unfortunately it didn't work.

The program is a little over 16K and takes 30 minutes to load. What do you have to do to run the program after EXEC'ing it?

In the magazine it says that if line 50 is out the statement 'OK' will appear on the screen - but it didn't work!

I've checked the program a couple of times, but it didn't work.

Help!

Viola Bogdanis,

Melbourne, VIC

Viola,

To get "Zonx" to work the way it should, you must do these following things:

1. RUN the program.
2. When it says "Ready Recorder/Press ENTER", place a blank tape into the cassette recorder, press PLAY and RECORD and press any key. The tape player will start to whirr.
3. When finished, rewind the tape and press PLAY. At the computer, type CLOADM and press ENTER.
4. The computer will now load "Zonx". When the 'OK' prompt comes back, type EXEC and press ENTER.
5. Now you can play the game.
6. If you want to play "Zonx" again, go to step 3 and continue down.

Regarding "Starlord"; there seems to be many errors throughout the program. We have not seen any corrections for it from the American Rainbow Magazine and I recommend that you don't worry about it.

*

Dear Dr CoCo,

We have bought a disk drive a few weeks ago - now we'd like to transfer all of the cassette programs to disk - we have noticed that there is a 2K memory loss.

But when we upgraded the computer to 64K, the man told us we would have a full 64K of memory.

Moon Base Amphibia out of Rainbow (Nov. 1985) and Alpha II out of Rainbow (Feb 1985) ran out of memory with the disk drive attached, but are okay without the disk drive attached.

Anyway, can we access all the memory without losing the graphics pages and disk inserted?

C.W. Escabache

C.,

With the 64K upgrade, there will be no way that you can have the full 64K of memory under Basic ROM.

The only way you will access the full 64K is by running other languages like OS-9, Flex and the such.

*

Dear Dr CoCo,

I have owned a 16K ECB CoCo for the past 18 months now, but after reading your list of products in the May issue I have been thinking about your 64K upgrade and have a couple of questions about it.

1. Is it the same quality as the Tandy upgrade?

2. How do I access the full 64K?

3. What do I have to do to install these parts, what wires do I have to cut and what is there to solder?

Also, do you know where I could obtain a speech synthesis chip and a book called "500 Peeks, Pokes 'n' Execs"? How much are they each?

Derek McGuinness

Derek,

1. The 64K Upgrade kit is the same quality as the upgrade that Tandy offer.

2. See the above letter, re accessing the full 64K.

3. The instructions to install the 64K upgrade kit will be included in the package. If you have a white short case CoCo (I assume you have, as you state that you got it less than 18 months ago) all you will have to do is pull out two chips, put in two other chips supplied from the package and solder together a jumper.

Speech Synthesis chips are available from Tandy for about (I think) \$25 while "500 Peeks, Poke 'n' Exec's" can be bought from Paris Radio Electronics for about the same price.

Dear Dr CoCo,

Recently I upgraded my CoCo system with a CoCo 3. Up till then, I was quite happy with my word processor, "Telewriter-64". Now I am in trouble. It seems that, whenever I load "T/W" into CoCo, I am able to write letters, but as soon as I try to adjust printer formats, the computer 'hangs up' on me.

I suspect there is a byte wrongly embedded which I cannot find. Although I have a Zapper program "Igzap", I have tried, but to no avail.

Since I've read with joy in my heart that you use the same word processor, perhaps you would let me know the secret?

Perhaps you can help me out?

John Dayman

John,

Yes it's true. We use Telewriter-64 on the CoCo 3, day in day out. The only problem we have is we get an ?FN error when we access the Disk I/O. But we can rectify that by typing CLEAR20:RUN"S/XXX".

But what you didn't tell me is if you are using a tape deck or a disk drive. If it is a disk, what DOS are you using?

The trick to it is that we have no trick. It's usually the computer itself. What can work on one CoCo 3 will mean disaster for another CoCo 3.

We suggest (like we did to one CoCo 3, once ...) is that you drop your CoCo on the table from the height of about 20 centimeters. This, if applied properly, will settle the GIME chip in its socket properly.

It might work. If not, try using YOUR "Telewriter" on another CoCo 3, say at the Tandy store in your area?

*

Dear Dr CoCo,

I am having troubles with the program called "Tank Battle" listed in the September 1986 issue of Australian CoCo and would appreciate your help. I have checked my typing a number of times and can find no errors. You have not published any corrections to this program.

The first listing works okay and shows on the screen to enter ML listing by pressing any key. Pressing a key to add the ML listing gives an FN error and it

will not load. By changing line 200 in the first listing to CLOAD instead of CLOADM as shown, the ML listing will then load but the program will not run.

In line 120 of the ML listing there is a printing error in the fifth line which reads:-

3,F8,3F,F8,1F,F,1F,F8,1F,EC,F,8

I have taken the blank space to be an 8, however, this may not be right. In checking with your Newcastle agent, Lyn Dawson, her copies are the same and she was not aware of any contacts that had typed this program.

It would be greatly appreciated if you could advise me re the above and any other corrections needed to make this program work.

J.D. Hunter

J.D.,

Line 120 of the ML listing could look like an 'F8' ... but we're not too sure about that.

Anyway, the correct procedure to getting this program to work is thus:

1. Load/Type in the first listing as it appears in the tape/disk/magazine and save it on a blank tape.

2. Load/Type in the second listing and type in:

25 CSAVEN" TANK-M",14624,16382,
14624

3. Put back the first tape (the one with the first program on it explained in step 1) into the tape recorder and press PLAY and RECORD. Type in 'RUN'.

4. After a few moments the tape will start to record. This is the ML program needed for the main program. When it is finished, type CSAVE"MLPROG". This will save the basic version of the ML program.

5. Rewind the tape, type CLOAD and RUN.

As a check, you should have on one new tape the following programs: Listing one, listing two (in the form of an ML program) and listing two again (in the form of a basic program).

There - it will now work.

SUBMITTING YOUR WORK

Ah! So you've finally finished that program? And you say to yourself, "What a great program that would make for CoCo Magazine/Softgold Magazine!"

And so you wonder to yourself, "How am I going to send this program in to the magazine?". Some time goes by and you suddenly realise, "Hey, there's an article in this month's magazine about submitting your work. I'll read through that and maybe that'll help me."

So you rip the magazine out of your stack of other CoCo/Softgold magazines and read the article on how to submit your program.

It reads ...

"... we accept programs stored on both tape and disk ONLY along with a hard copy of the program(s) (optional only; we use it here as a reference to see what the program is/does) and suitable instructions.

Saving to Tape

Each program would be best saved three times with the last save being in ASCII. The tapes we recommend you use are either a C30 or less (the reason for that is that tapes longer than C30 have a tendency to tear).

It'd be even better if you could include some instructions along with the program, either as a separate program or in the wordprocessors listed below.

Saving to Disk

With disk, you'd be best to save it three times with the last save being in ASCII. Also, the extension name for the second and third copy should be different, so to distinguish the three copies. A simulation is given below.

"... I have just saved 3 copies of a program called "HORSE". The directory listing would be:

```
HORSE  BAS  0 B 3
HORSE   1  0 B 3
HORSE   2  0 A 3'
```

Any instructions could be saved in the same system using either a program or in the wordprocessors listed below.

Wordprocessors we use.

Here is a list from our most preferable wordprocessors to the drastic measure one could take to tell us how your program works.

1. Telewriter/Telepatch
2. Scribes
3. PenPal
4. VIP Writer
5. Any form of data file.
6. Instructions written in a separate program."

"Oh wow!", you think to yourself as you read it with awe and astonishment. So you go about your busy little way saving your program and instructions to tape or disk. Then you say to yourself, "Where do I send it?"

You read the article on ...

"... any articles and programs should be sent to this address:

Submissions Editor,
Freepost 5
PO Box 1742,
Southport, Qld, 4215

All mail to this address need not be paid for.

All tapes and disks received will be returned after three months in case we need to refer to something or re-print something."

So place your tape/disk along with your hardcopy of the listing in a postpack (or suitable wrapping) and pop it in the mail.

All done!!

SWANSLINE



by Samantha McCormick

IT WAS EXACTLY 10am when I hauled my protesting body round to Graham's place for the Dreamworld rendezvous, where 10 hardy Viatellians waited for Karen to emerge from the shower.

It was 11am when the convoy rolled up at Dreamworld and we all burst through the gates, enthusiastically led by Graham who was hell bent on wearing us out before the party.

First stop was the Model T cars, a harmless enough jaunt around a miniature track, designed to lull us into a false sense of security before trying out the other rides.

As official reporter and photographer I declined the invitation to lose my breakfast on the more thrilling rides, in favour of enjoying watching faces as they broke their necks in the name of fun.

The log ride - now known as Dessip's Demise drenched everybody foolhardy enough to attempt it (ie, everyone except me! heh heh heh). So they all trooped off to the Eureka Mine Ride to whoosh dry their clothes.

It was, apparently a most 'exciting' ride, or so related the extremely white Rabbit with touches of green.

Those still able to walk strolled around the ghost town where we managed to manoeuvre Graham into the jail for not nearly long enough. He escaped to the candy store and we lost sight of him for a while.

Jackal disappeared for a while too, and came back looking suspiciously amicable. We found out why when after conning Manticore, Karen and several other more gullible Viatellians onto the Enterprise ride; he sat back with his camera and the most wicked grin I've ever seen!! He positively chortled with gleeful anticipation as the ride began. All I can say is

thank goodness I didn't go near it!

It didn't take much to convince everyone to go on my favourite ride after that, and we besieged the merry-go-round en masse, where UFO entertained us with a fine display of trick riding, and where we all relaxed enough to attempt the "Thunderbolt".



An extraordinary ride, strictly for masochists, consisting of a stomach churning roller coaster.

Deb 007 and I sat with our feet firmly on the ground and

watched in awe as Paragon, White Rabbit, Big B and Graham actually went back for seconds.

After lunch and a singalong with Kenny Koala, we managed to find a team of wild horses to drag Manticore and White Rabbit away from the Gum Nut Fairy and onto the Steam Train for a chuff around the park before showtime at the Country Jamboree, whose electronic koalas, kangaroos, and bunyip entertained while a cockatoo made facetious comments from a nearby perch.

All in all it was a most enjoyable day (even if Big B and Jackal did refuse my invitation to 'borrow' the glass swan doors I discovered in the tavern).

There was just enough time for a cat nap and a shower before dressing for the party.

A Viatellian in a suit is truly a sight to see, and though not everyone got into the formal spirit, there was certainly a lot of "warming up" going on!

The terminals were set up in Graham's study for party updates from both the Sanctuary and Clubroom though the Goldlink computer was soon commandeered by the irrepressable JJ as Graham partied up large in his John Travolta suit.

Fortunately Rick and Neil of The Young Ones (TYO's) took pity on me updating all alone, and out came the guitars for a rendition of "Stairway to Heaven" that had to be heard to be believed.

By the time I managed to log off and join the party it had quietened down considerably and the dancing more closely resembled vertical seduction than boogying (fortunately, Martha had left by that stage).

My terminal was rapidly taken over by Deon who was blissfully convinced he was seeing double with Pegasus and Lucifer twins on either side of him.

continued on page 58



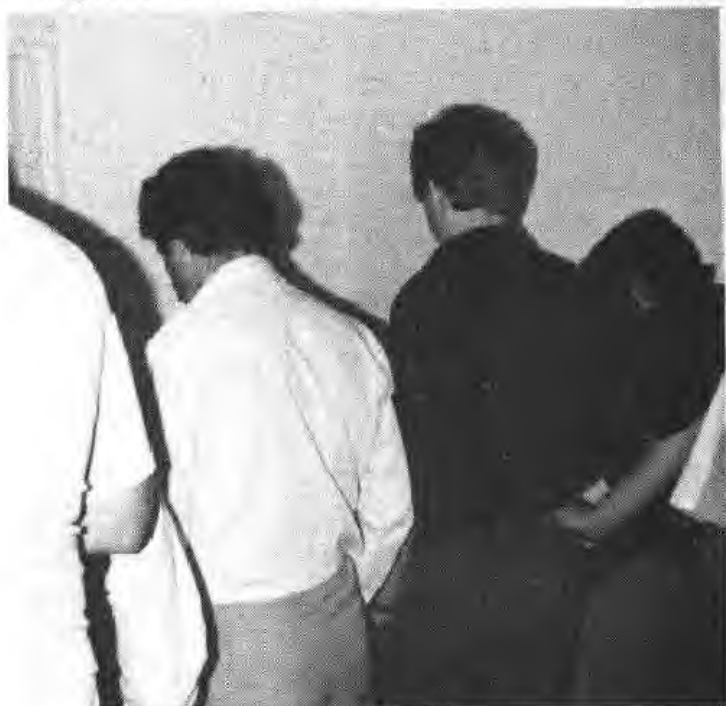
THE GREAT GOLDLINK WINTER



Well it was supposed to be formal! Rob was the only one to remember!



JoKeR with Neils hair, ordering four more rum and Cokes! UFO (Jack Fricker) trying not to be noticed!



Not, it is not what it seems - they're watching SWAN update the Sanctuary.



Jackel again. Karen in someone elses hair and the beautiful Dessip.

WARM-UP



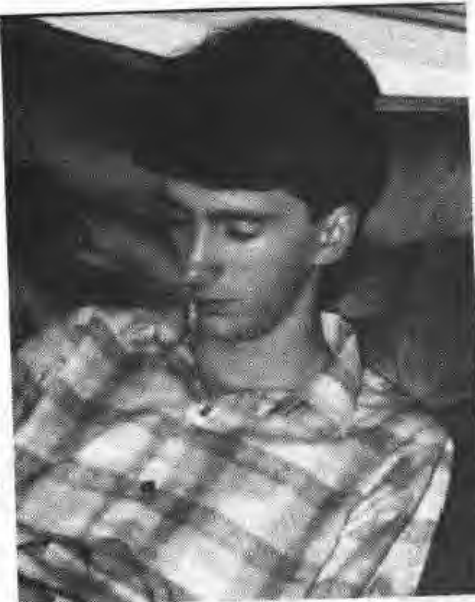
Wow! a K-Mart Manager with Rick from the Young Ones.



Rick from the Young Ones playing with his instrument!



Graham, The Jackal in a respectable shot with Frank passing through on the way to the esky!



Neil from the Young Ones. Life of the party!



Mickey Rat and Maurice checking the photo's from Dreamworld.



Julie and Mike.
Mike may be Tandy's #2 manager but I'll take Julie anyway!

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+ data base manager

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PLAYER ONE

Here is a tip for Mark Data's Trekboer. To set coordinates in the control room simply type "set xxxx"; xxxx being the coordinates of the planet.

It is possible to get 1 000 000 points in the rampak game, Canyon Climber. As I found out from a person who has done it: if, on the arrow set (set2), you just stand and jump the arrows, they get close together and eventually they will not harm you but you still get the points.

On Zaxxon, When you get to the split force fields, fire at them. When your bullets go right through, you are at the right height.

For Ninja Warrior, When you reach the end of a set, if you jump over the point where the ground becomes a solid colour, you get an extra 100 points.

Letters! Please! I'm waiting. send in your problems.

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MICO NEWS

Editor Jim Rogers

Welcome home to Kevin Mischewski from his world travels. Kevin, as you older readers may remember, was the editor of Mico until he left to go overseas and I took over from him in December 1985.

In the intervening months, Kevin has travelled extensively in Canada, USA and Mexico. No, he won't be picking up where he left off with Mico - at least I don't think he will but with a bit of persuasion, we may be able to get an article or two from him on his overseas experiences.

Saved by the bell! The response from MC-10 users in this past month was somewhat more gratifying and because of this, I have been given a bit more ammo to fire at the opposition. We live again! At least, for the present.

It is with great disappointment that I have to mention that the proposed addition of a disk drive for the MC-10 by Scott Ferrero has had to be abandoned owing to the cost involved. It is quite possible to make the addition,

Scott tells me, but only the cost of materials makes it impractical. A great pity as I had been looking forward to enjoying the use of a drive with the little MC-10!

However, for anyone who may be interested, I am publishing, this month, the details of a joystick attachment. This was sent in by Greg Taylor of Hobart some time ago and has been held up during a checking and testing period. It has been found to work quite well for the two directions and the fire.

If anyone has more of these little gadgets or articles, let us hear from you.

Jim

A Simple MC-10 Joystick

by Greg Taylor

The following circuit can be used to implement a simple joystick for the MC-10. The RS-232 port is used to sense two joystick directions and plus the fire button.

This is quite adequate for many games and certainly relieves the keyboard from repetitive pounding.

To turn the joystick on:-

Poke 3,0

To turn the joystick off:-

Poke 3,1

To sense the joystick pos.:-

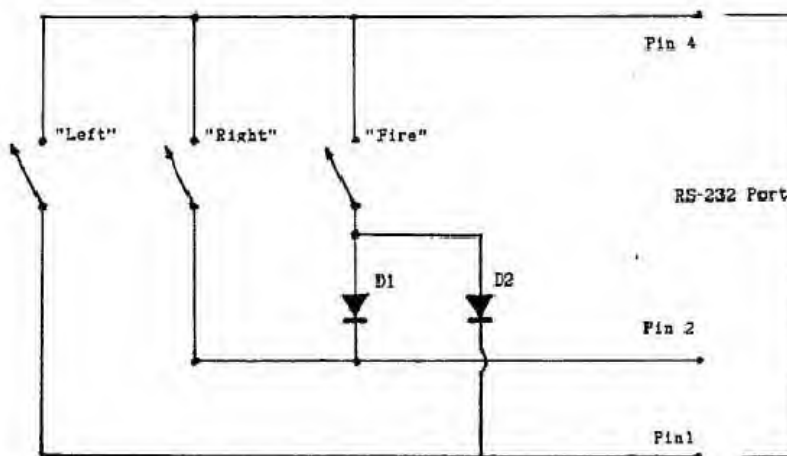
JS=PEEK (3)

JS = 78 if no joystick movement

JS = 74 for right

JS = 70 for left

JS = 66 for fire



D1 & D2 = 2 x 1N914 or 1N4148 etc

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CLOSER ENCOUNTERS

by Laurie O'Shea

Dear President Reagan,

This is an open letter to you and the others responsible for running governments throughout the world. The reason I am writing this letter is because I am very saddened by the use of computers in projects such as your Strategic Defence Initiative (SDI), the so-called "Star Wars" project in space.

I was more saddened to read that your house of representatives have approved a \$A4370 million for the project when so many people in your country and mine even more so in the rest of the world go to bed hungry or cold or suffer from diseases we could cure if we could find the necessary research.

Computers could bring the world so much that would benefit us all, if we could only learn to live together in peace and harmony. Peace will not come about through huge armies, sophisticated weapons of awesome power which could destroy all humankind twenty times over and huge sums of money and vast resources devoted to propaganda.

Peace will come about when we share the rich resources of this planet more fairly and devote the wonderful technological developments of the past two or three decades to solve the problems of hunger, disease, poverty and illiteracy, famine and natural disasters.

One of the most remarkable resources we have today is the computer and it is one of the 20th century's greatest tragedies that we are failing to use this tremendous achievement for the good of the whole planet.

I am not saying that we must not defend ourselves but what I

am saying is that the so-called "super powers" are using disproportionate resources in an ideological war that threatens us all - if things go wrong.

"Dear President Reagan,..."

And they could go terribly wrong. Our technological sophistication actually threatens us even more than was the case thirty years ago. We have become increasingly dependant upon computers to make crucial decisions.

The frightening speed at which modern warfare operates can be demonstrated by the tragic loss of life in the USS Stark, a guided missile frigate similar to those operating in the Royal Australian Navy.

Modern aircraft and air to surface missiles such as the French Exocet missile fired at the Stark operate so quickly that very little warning is given. It is believed that the automatic computer-operated system that could have downed the Exocet was switched off and the ship only had a few seconds warning on visual sighting.

The automatic phalanx rapid fire cannon and short-range surface to air missiles deal with aircraft and other "hostiles" within six miles of the ship and on a collision course with the ship.

The problem is that perhaps a low-flying civilian plane such as an airliner hijacked and on radio silence or one in trouble can also be shot down. But the problem is that the decision time is so short for humans and computers are not "wise" enough to cover all eventualities. The awesome power of modern weapons systems is so frightening that mistakes must not occur.

With the USS Stark, thirty-seven young and valuable lives were lost. What is perhaps the only good news was that this tragedy did not lead to a full-scale war with even greater loss of life.

The new technology coupled with human error may be increasing the danger of accidental nuclear war during periods of international tension. The view is supported by leading scientists and computer experts throughout the world.

A study performed by the Brookings Institution and the Center for Science and International Affairs at Harvard University, both in the USA, "Managing Nuclear Weapons" has made the worrying claim that an accidental nuclear war is more likely now than ever.

The study points out that although the nuclear control systems have worked for more than 40 years since Hiroshima and Nagasaki, the complexity of sophisticated modern machinery and complex software may result in more, not fewer human errors in times of crisis.

The authors say that computer and human errors in the past have been corrected easily because they have occurred in comparatively peaceful times.

But the study, contributed by the American Assistant Secretary of Defence of Communications,

Control and Intelligence, Donald Lathern, questions whether the US and Soviet Union have invested enough time and thought into developing a failsafe system for controlling nuclear weapons during an international crisis.

Previous false alarms have taken place in periods of diplomatic low tension. In June, 1980 for instance, a computer chip at Strategic Air Command wrongly signalled an impending Soviet attack. American missiles were put on alert, B-52 bombers took off and American communications systems went on alert until the SAC commander realized it was a mistake.

But as technology advances the time in which the human operators have to correct a computer error have become shorter, indeed chillingly shorter. The decision-making contribution by human beings is gradually becoming less as the systems becomes more sophisticated. Thus the decisions, assumptions and judgements made by computer-based systems are harder to correct.

Both the US and the Soviet Union use vast computer networks to analyse information from satellite and radar installations. However computer failures and human errors have led to increasing numbers of false alerts. In the US there were two false alarms of impending missile attacks every three days.

In 1980, a US Titan missile was nearly launched to the Soviet Union by mistake. In 1984 a war alert was transmitted by human error from the Soviet Pacific Fleet headquarters to ships and submarines at sea.

All the errors were spotted but what if the day comes that they aren't? Is the world going to end because of a computer or human error?

A senior physicist at the Harvard University, Dr Ashford Carter, says that the real problem is that technology is outstripping the comprehension of any one person.

He calls it "Spagetti wire diagram" in which nobody understands how the systems work or how to control them.

At the same time, technological improvements mean the operators have less time to spot a mistake. In the early 1950's the US had 12 hours in which to decide whether to respond to an apparent attack. Now there is less than 30 minutes. For the UK that is 4 minutes. For those who died in the USS Stark a few fatal seconds.

What really makes me sad is that computers offer such exciting possibilities for the whole of humankind. Computers should be used to make the world a better place for all of us, and a world where we can bring

"...a computer chip wrongly signalled an impending Soviet attack."

up our children with hopes for a future instead of fears that they'll never live long enough to enjoy it.

We spend MEGA billions of dollars on destructive weapons so frightening that even our children get nightmares just thinking about them and 20 million die each year from poverty, malnutrition, actual starvation and preventable disease. A tiny portion of the world's overspending would save all those lives. Millions more grow up stunted with most of their future potentially destroyed - because of our misuse of the world's finite resources.

In Mozambique and Ethiopia in Africa, a child dies every few minutes while in both countries complex, expensive and cruel weapons (purchased or supplied by us or the Soviet Union) destroy the ability to produce food. 85,000 children will die in Mozambique this year.

Ethiopia has long-term drought problems while those in Mozambique are due to the civil war mainly.

The use of modern technology can help Ethiopia where de-afforestation has led to massive soil erosion.

Millions of children, the sick and elderly have already died or will soon be dead.

South Australia has established a world lead in the use of computers in this type of situation. An SA company, The SA Center for Remote Sensing has won a contract to help relieve the tragic conditions that have lead to millions being at risk from chronic malnutrition.

The project involved reafforestation of parts of Ethiopia to lessen the effects of drought while high-tech resources would be used to formulate a plan to help manage existing energy resources in the country.

The loss of Ethiopian forests have contributed to the decline in agriculture and has become a vital factor in prolonging and aggravating the drought and causing tragic loss of life, and much pain, suffering and despair to a once proud people.

The Center for Remote Sensing has developed a world-wide reputation for its application of satellite and computer technology in monitoring various resources and its application in a wide range of fields such as agriculture and mining, soil management and resource management.

The project will involve the supply of computers and training for the Ethiopians over four years and include the introduction of new crops in areas not conserved before. This concept, which involves innovative use of computer and related technology is far more likely to bring peace to a troubled world than "Star Wars".

But the use of computers in creating a better world, rather than destroying it, has even greater potential than what is being achieved in Ethiopia.

Genetic engineering offers tremendous potential in helping to feed and clothe a hungry world with an imbalance of natural resources.

Cattle six months old could be fully grown, strawberries could even be grown in the bitter and freezing conditions of Alaska; and already potatoes are flourishing in the frosty mountains of California.

This opens up potential problems but carefully controlled research could lead to nutritious food being able to be grown at high yield levels on even poor soils. It would enable people to be fed and at the same time reduce the problems of soil erosion.

Computers play a valuable role in the genetic engineering as profiles can be developed for a "what if?" situation and many years of normal research can be carried out on computers in days or weeks.

Genetic engineering could be one of the world's potent weapons against poverty, hunger and disease.

The world is threatened with diseases such as AIDS (Acquired Immune Deficiency Syndrome), which although a growing problem in the western world, is a devastating disaster in Central Africa. It threatens to kill between two and five million people over the next two years. This is, next to famine, the most horrifying disaster the world faces.

In fighting such diseases and other such similar problems, the use of computers in research could save millions of lives. The cost of say, one guided missile frigate devoted to research to AIDS using the most sophisticated computer equipment available, could save tens or even hundreds of thousands of lives. This would be a much more beneficial use of technology.

I am not saying we should not defend ourselves but the current insanity of the so-call "Arms Race" is creating an overkill and a waste of valuable resources which, used wisely, could more humanely build a peaceful and prosperous world.

There are so many more useful means of using the amazing technological advances of the past three or four generations, especially the computer. We face a serious problem for the future for current and future

generations - that of chemical and atmospheric pollution which threatens to choke our rivers, lakes and seas, cripple our agriculture and make breathing difficult or one day impossible.

If we maintain our present abuses of our delicate ecological balance systems, we may yet not end with a BANG! but but a choking gasping whisper.

Our vast computer resources should be developed to assist us cope with problems such as pollution and over-exploration of non-renewable resources, before we reach the point of no return.

"I want my children to grow up, not blow-up."

The risk to the atmosphere from the millions of tons of smog, fumes and chemical wastes poured into the air which upon our very lives depend is increased because we are destroying our vital forest resources - especially the rainforests. More than half the oxygen we breathe is produced in the Amazon rain forest which by about the 2010 may be destroyed beyond repair.

We need to pour the level of computer technology necessary for "Star Wars" into vast international communication and research networks to predict accurately what is happening, where the point of no return is reached and what can be done about it.

Parallel to this we need to use computer based resources and research on a scale that EXCEEDS that envisaged in "Star Wars" to develop new species of rapid growing trees to provide new sources of fibres for clothing, fuel for homes, cars and industry, and produce the pure air we need to survive.

I fear a future where my children and their children will have to wear gas-masks so that won't choke to death on pollution and where chemical wastes make enjoyment of life impossible because we cared too little, too late.

We also need our computer and other technological resources to battle cancer, heart disease and leukemia and similar life-threatening diseases which reduce life expectancy. Computers enable research to be stepped up much more rapidly than previously ever possible. The expenditure on "Star Wars" might banish diseases such as these and others forever.

Mr Reagan, my children and others are at the beginning of their lives. Can we not let them inherit a world where the rich nations share their resources for the less fortunate? When anyone suffers, we all suffer.

The United States of America and the USSR between them could generate resources of unbelievable complexity to solve the problems that plague the whole of human kind.

Can we dedicate the next decade - I repeat decade - to the use of computers for peace and prosperity of us ALL without exception? Just think of that memorial for the world - "The International Decade of Computers for Peace and Prosperity"?

Will you take a great step for man and the greatest of leaps for mankind?

Later, in years to come, some curious Voyagers from another life system come across the silent memorial to the planet Earth - your Strategic Defence Initiative (SDI) or "Star Wars" with the greatest computer technology ever dreamed up by humans circling a silent dead planet either choked to death on its own wastes or severed lifeless by the horrifying and devastating nuclear arsenal we have developed in a grim lottery of destruction.

Every journey starts with a single step - please make the greatest first step by any president of the United States of America in its illustrious history - but NOT "Star Wars".

Yours sincerely,
Laurie O'Shea

SEE YOU AT

CONF

BUNDEENA NSW
AUGUST 8 & 9

Conf '87 this year is to be held at the Uniting Church's campsite in Bundeena NSW.

This is a particularly pretty area of Sydney, situated on the northern tip of the Royal National Park, in Port Hacking.

The water views are fabulous, and the bushwalks are amongst the best in Australia.

Getting there is not a problem.

Bundeena is reached through the Royal National Park by road or by train to Cronulla and ferry from the nearby wharf to Bundeena.

The conference will be jam packed with all sorts of things to see and do!

The big news this year will obviously be the growing use of OS-9 Level 2 on the CoCo 3's; and Conf '87 will be the definitive place to see this excellent system.

By that time initial users will have had time to sort the system out and create some really interesting stuff.

But it is not just OS-9 that is of interest this year.

Blaxland Computer Services have imported a wide range of new products for the Tandy CoCo 3 and all of this will be on show and in use.

Some of these products are very exciting. For example Colour Max 3 should be available at the show - a colour version of CoCoMax.

And Blaxland will also have the MIDI interface which allows you to connect your CoCo to any synthesiser.

Paris Radio will be bringing their Sculptor based accounting package, all the new OS-9 packages for the CoCo 3, an Atari running OS-9, they'll have a big modem sale, featuring the HAYES compatible Avtek Megamodem, the latest version.

They will also be connected to "Infocenter", Paris Radio's on-line information service.

Infocenter was one of the first on-line services in Australia and continues to be a source of programs and information for Tandy computer owners.

Paris will also have an enormous bookshelf, including "CoCo 3 Peeks and Pokes". There will be memory upgrades for the CoCo 3, Macintosh software running on the Atari, and possibly an Oki Laser Line 6 printer working with the CAD 3-D software package for the Atari 1020.

With the release of the new T1000 EX and SX, interest in these machines has never been higher. We'll have a number of these computers at the conference, as well as their big brothers, the T3000 series, which we'll be putting through their paces.

We've had continuing interest in some of the more diverse subjects covered in the magazine at past conferences, so again this year we'll have tutorials on hardware mods and on Forth.

There'll be Basic Basic and Advanced Basic courses, and an Assembly Language tutorial as well.

Some of the people attending as lecturers this year include Johanna Vagg, Ron Wright, Jack Fricker, John Redmond, Mike Turk and John Witstyn.

John Witstyn is an expert on MS DOS and especially the IBM PC and he will bring us a broad range of information for Tandy 1000 users.

Other computers will be discussed, principally the 68000 series of computers, and of course, we'll be showing Goldlink 642 on Viatel - and computer communications in general.

'87

Conference is a place to meet old friends, to meet the people behind the names in the magazine, to learn a lot of new information, to see the latest Tandy equipment.

We hope you'll come. We're sure you'll be glad you did. But please hurry your booking, because accommodation (which is not obligatory) and places at the conference, are both limited by the size of the centre.

The cost is increased over previous years due entirely to the fact that we are doing it in Sydney which is a good deal more expensive than the Gold Coast!

On the other hand, many of you will save by not having the additional travelling expenses associated with getting to the Gold Coast.

We aim to make the conference a family affair, and the location is a good one for people with families who are less interested in computers, but who would still like to be with dad or mum for the weekend.

The family can take a ferry trip, go for bush walks, or just laze on the beach, whilst you do your thing at the conference.

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Accommodated (1) \$87.00
Family of 2, + \$68.00 = \$155.00
Additional family members \$52.00 ea
Includes supper Friday evening, breakfast
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	One day	Two Days
One person	\$40.00	\$58.00
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	\$52.00	\$70.00

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Includes morning / afternoon tea and lunch.

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DATE:- 8th & 9th August, 1987

REGISTER NOW!!

We can only accept a limited number of people this year. **DON'T MISS OUT!** on a top weekend of **FUN, FRIENDSHIP and LEARNING.**

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No. People attending:

SPEAK UP!:- Now is your chance to suggest your ideas for any tutorials we may not have mentioned. (participants only).

Tutorials likely to attend:

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Signature:

TANKS

AND

BRIDGES

GAME

32K ECB + Joystick

by John Hainsworth

IN TANKS AND BRIDGES, you are defending three bridges which are under enemy attack. Use the right joystick to move horizontally across your side of the river.

Fire control is used by vertical movement of the joystick. To shoot press the fire button.

Note: At no time is there a gun sight visible. The only time that you see where your shot lands is when the fire button is pressed.

You may have either 1, 2 or 3 tanks attacking. If an enemy tank reaches a bridge you lose one tank.

In the easy level, you only receive enemy fire each time that you fire.

In the hard level, enemy fire is continuous.

In both levels you lose 1 tank each time you are hit.

Enjoy!

The Listing:

```
0 GOTO10
3 SAVE"178A:3":END'1
10 '****TANKS AND BRIDGES***BY J
.HAINSWORTH***SEPT 1986***
20 PCLS: CLEAR200
30 PK=65495
35 GOTO 1110
40 GOTO 1030
50 GOSUB920
60 CLS: GOTO 760
70 DIMT1(0,8),T2(0,8)
80 A=164:B=118:C=188:D=130:E=168
:F=12:G=105:H=2:I=118:K=20:G1=10
```

```
5:H1=2:I1=118:K1=20:G2=105:H2=2:
I2=118:K2=20:Q=4:SC=0:MN=5
81 AT=0
90 Z=10:Y=126
100 DRAW"BM168,120S4C5R12D2LD4RD
2L4D2L4U2L4U2RU4LU23R6BD2NU6F2D6
L4U6E2"
110 PAINT(173,126),5,5
120 DRAW"BM108,16A3C5R12D2LD4RD2
L12U2RU2NL4E2R4D4L4H2U2LU2"
130 PAINT(112,12),5,5
140 GET(A,B)-(C,D),T1,G:GET(G,H)
-(I,K),T2,G
160 PMODE4,1:PCLS
170 COLOR5
171 AT=AT+1
180 LINE(0,90)-(32,116),PSET,B:LINE
(48,90)-(104,116),PSET,B:LINE
(120,90)-(176,116),PSET,B:LINE(1
92,90)-(256,116),PSET,B
190 LINE(0,132)-(256,132),PSET
200 PAINT(8,100),5,5:PAINT(200,1
00),5,5:PAINT(80,100),5,5:PAINT(
144,100),5,5
201 LINE(0,0)-(30,80),PSET,B:LIN
E(50,0)-(100,80),PSET,B:LINE(122
,0)-(174,80),PSET,B:LINE(194,0)-
(256,80),PSET,B
210 SCREEN1,1
220 DRAW"BM150,142A0NR4D4R4D4L4B
R8NR4U8R4BR4D8R4U8NL4BR4ND8R2F2G
2L2F4BR4NR4U4R4U4R4"
230 DRAW"BM20,150U8NL4R4BR4ND8R4
D4NL4D4BR4U8D2F4D2U8BR4D8BR4H4E4
BR4NR4D4R4D4L4"
235 DRAW"BM90,180U8R4D4L4R4D4BR6
U8L2R4BR4R4L2D8BR6U8R4D4L4R4D4BR
8L3H2U4E2R3BR4D8BR4H4E4"
250 SI=8:SH=4:MO=6:K2=20:S2=12:R
=0
260 Q=Q-2:IF Q<-2 THEN Q=2
270 RA=RND(3)
280 IF RA=1 THEN 290 ELSE IF RA=
2 THEN 300 ELSE IF RA=3 THEN 310
```

```
290 PUT(G1+72,H1+MO)-(I1+72,K2+M
O),T2,PSET
300 PUT(G,H+MO)-(I,K+MO),T2,PSET
310 PUT(G2-72,H2+MO)-(I2-72,K2+M
O),T2,PSET
320 J=JOYSTK(0):J1=JOYSTK(1)
330 IF J=>15 THEN SI=SI+4
340 IF J<45 THEN SI=SI-4
350 IF J1=>15 THEN S2=S2+4
360 IF S2=>70 THEN S2=70
370 IF J1<45 THEN S2=S2-4
375 POKE PK,0
380 IF VW=1 THEN 440 ELSE IF VW=
2 THEN 390
390 PH=RND(6)
400 IF PH=1 OR PH=3 OR PH=6 THEN
GOTO 410 ELSE IF PH=2 OR PH=4 O
R PH=5 THEN GOTO 440
410 FOR R=2 TO 3:CIRCLE(Z+X,Y),R
,5:NEXT:PLAY"T6001L6GELS"
420 IF PPOINT(Z+X,Y)=5 THEN PLAY
"T10002L50GF#FED#DC#C":IF PPOINT
(Z+X,Y)=5 THEN GOTO 530
430 FOR R1=3 TO 2 STEP-1:CIRCLE(
Z+X,Y),R1,0:NEXT
440 PUT(A+SI,B)-(C+SI,D),T1,PSET
450 IF PEEK(65280)=126 OR PEEK(6
5280)=254 THEN GOTO 460 ELSE GOT
O 580
460 FOR R=2 TO 5
470 CIRCLE(E+SI-PX,F+S2),R,5:CIR
CLE(Z+X,Y),R,5:PLAY"T5001L12CF#C
F#"
480 NEXT R
490 FOR R1=5 TO2 STEP-1
500 CIRCLE(E+SI-PX,F+S2),R1,0:CI
RCLE(Z+X,Y),R1,0
510 NEXT R1
515 LINE(0,0)-(30,80),PSET,B:LIN
E(50,0)-(100,80),PSET,B:LINE(122
,0)-(174,80),PSET,B:LINE(194,0)-
(256,80),PSET,B
520 IF RA=3 THEN GOTO 550 ELSE I
F RA=2 THEN GOTO 540 ELSE IF RA=
```

```

1 THEN GOTO 530
530 IF PPOINT(E+S1,F+S2)=5 THEN
SC=SC+20: LINE(200,140)-(250,150)
,PRESET,BF:GOTO 730
540 IF PPOINT(E+S1,F+S2)=5 THEN
SC=SC+10: LINE(200,140)-(250,150)
,PRESET,BF: GOTO 740
550 IF PPOINT(E+S1,F+S2)=5 THEN
SC=SC+5: LINE(200,140)-(250,150)
,PRESET,BF: GOTO 750
560 IF PPOINT(Z+X,Y)=5 THEN MN=M
N-1: IF MN=0 THEN 860 ELSE 160
570 IF K2=80 THEN MN=MN-1: TX=TX+
1: IF MN=0 OR TX=5 THEN GOTO 860
ELSE 160
580 MQ=MQ+4/Q: X=RND(200): IF K2+M
O=100 THEN MN=MN-1: IF MN=0 THEN
860 ELSE 160
590 SC$=STR$(SC)
600 V1=VAL(RIGHT$(SC$,1))
610 V2=VAL(RIGHT$(SC$,2))-V1
620 V3=VAL(RIGHT$(SC$,3))-V2-V1
630 V4=VAL(SC$)-V3-V2-V1
640 V4=V4/1000: V3=V3/100: V2=V2/1
0
650 DRAW"BM200,150"+A$(V4)+A$(V3
)+A$(V2)+A$(V1)
660 MN$=STR$(MN)
670 V5=VAL(RIGHT$(MN$,1))
680 V6=VAL(RIGHT$(MN$,2))-V5
690 V7=VAL(MN$)-V6-V5
700 V7=V7/100: V6=V6/10
701 AT$=STR$(AT): Q1=VAL(RIGHT$(A
T$,1))
702 Q2=VAL(RIGHT$(AT$,2))-Q1
703 Q3=VAL(RIGHT$(AT$,3))-Q2-Q1
704 Q4=VAL(AT$)-Q3-Q2-Q1
705 Q4=Q4/1000: Q3=Q3/100: Q2=Q2/1
0
706 DRAW"BX150,180"+A$(Q4)+A$(Q3
)+A$(Q2)+A$(Q1)
710 DRAW"BX80,150"+A$(V5)
720 IF RA=1 THEN GOTO 290 ELSE I
F RA=2 THEN GOTO 300 ELSE IF RA=
3 THEN GOTO 310
730 PLAY"T15001L30GF#FED#DC#C": R
A=2: GOTO 300
740 PLAY"T15001L30GF#FED#DC#C": R
A=3: GOTO 310
750 PLAY"T15001L30GF#FED#DC#C": R
A=3: GOTO 160
760 PMODE4,1: PCLS: SCREEN1,1: COLO
R5
770 DRAW"BM40,80;S6NF20R20NG20NF
20R20NG20F20NL60ND10R40H4U2E2R6U
2H2UNL8E2R4U2R4D2R10D4L8D2R10UR2
F2D4G4NL26R10"
779 FOR IK=1 TO 155: POKE 178,IK: PA
INT(200,100),1,1: NEXT: POKE 178,3
780 PAINT(200,100),5,5
790 DRAW"BM20,40U8NL4R4BR4ND8R4D
4NL4D4BR4U8D2F4D2U8BR4D8BR4H4E4B
R4NR4D4R4D4L4"
800 DRAW"BM100,40U8R4D4NL4D4BR4U
8D2F4D2U8BR4D8R2E2U4H2L2"
810 DRAW"BM160,28D8R4E2H2E2H2NL4
BR6ND8R2F2G2L2F4BR4U8BR4D8R2E2U4
H2L2BR8NR4D8R4U4NL2BR4BD4NR4U4NR
4U4R4BR4NR4D4R4D4L4"
820 DRAW"BM100,120D8R4U4L4BR8D4R
4U4D8L2"
830 DRAW"BM60,150R4L2D8L3U4BR10D

```

```

4BR8U8BR4D4L4R4D4BR4U8R4D4L4R4D4
BR4U8BR4D8BR4U2H4BR4U2D8BR4R4U4L
4U4R4BR4D8R3U4D4R3U8BR4D8R4U8L4B
R8D8BR4H4R2E2H2L2BR6R4L2D8BR6U8B
R4D8U4L4"
840 FOR TI=1 TO 3500: NEXT
850 PCLS: GOTO 70
860 CLS: PRINT@7,"TANKS AND BRID
GES": PRINT@34,"YOUR FINAL SCORE W
AS": SC;
861 PRINT" FROM": AT;" ATTA
CK$":
862 PRINT: PRINT" AVERAGE OF": INT(
SC/AT)" POINTS EACH ATTACK"
863 PRINT: PRINT
870 PRINT: PRINT" ANOTHER GAME (Y
OR [N] ?"
880 SS$=INKEY$: IF SS$="" THEN 88
0
890 IF SS$="Y" THEN 900 ELSE POK
E 65494,0: END
900 SC=0: MN=5: AT=0: GOTO 160
910 END
920 A$(1)="BRU8NG2D8R2BR4"
930 A$(2)="BU8R4D4L4D4R4BR4"
940 A$(3)="BU8R4D4NL4D4NL4BR4"
950 A$(4)="BU4NU4R4NU2D4BR4"
960 A$(5)="BU8BR4D4R4D4NL4BR4"
970 A$(6)="U8NR4D4R4D4NL4BR4"
980 A$(7)="BU8R4D2G4D2BR8"
990 A$(8)="U4NR4U4R4D8NL4BR4"
1000 A$(9)="BU4U4R4D4NL4D4NL4BR4
"
1010 A$(0)="U8R4D8NL4BR4"
1020 RETURN
1030 CLS: PRINT@7,"TANKS AND BRID
GES"
1040 PRINT: PRINT" SELECT DIFFICUL
TY:"
1050 PRINT" [1] EASY"
1060 PRINT" [2] HARD"
1070 PRINT" YOUR SELECTION IS"
: INPUT W
1080 IF W=2 THEN 1070
1090 IF W=1 THEN W=1
1100 IF W=2 THEN W=2
1105 GOTO 50
1110 CLS: PRINT@103,"TANKS AND BR

```

```

IDGES": PRINT@224,"DO YOU WANT IN
STRUCTIONS Y OR N"
1111 IN$=INKEY$: IF IN$="" THEN 1
111
1112 IF IN$="Y" THEN 2000 ELSE 1
F IN$="N" THEN 40 ELSE 1111
2000 CLS: PRINT" INSTRUCTION FOR T
ANKS & BRIDGES"
2010 PRINT" YOU ARE DEFENDING THR
EE BRIDGES WHICH ARE UNDER ENEMY
ATTACK. USE THE RIGHT JOYSTIC
K TO MOVE HORIZONTALLY ACCROSS YO
UR SIDE OF THE RIVER. FIRE CONTR
OL IS USED BY VERTICAL MOVEMENT
OF THE JOYSTICK. TO SHOOT PRE
SS THE FIREBUTTON."
2020 PRINT" NOTE: AT NO STAGE IS
THERE A GUN SIGHT VISIBLE. THE
ONLY TIME THAT YOU SEE WHERE YO
UR SHOT LANDS IS WHEN THE FIR
E BUTTON IS PRESSED....": PRINT" P
RESS ANY KEY TO CONTINUE"
2025 EXEC 44539
2030 CLS: PRINT" YOU MAY HAVE EITH
ER 1,2 OR 3 TANKS ATTACKING.
IF AN ENEMY TANK REACHES A BR
IDGE YOU LOSE 1 TANK. IN [EASY]
LEVEL, YOU ONLY RECEIVE ENEM
Y FIRE EACH TIME THAT YOU FIR
E"
2040 PRINT" IN [HARD] LEVEL ENEMY
FIRE IS CONTINUOUS. IN BOTH L
EVELS YOU LOSE 1 TANK EACH TIME
THAT YOU ARE HIT.": PRINT" P
RESS ANY KEY TO CONTINUE"
2045 EXEC 44539
2050 CLS: PRINT" **SCORING*
*"
2060 PRINT: PRINT" LEFT TANK = 5 P
OINTS
2070 PRINT" CENTRE = 10 POINTS
": PRINT" RIGHT TANK= 20 POINTS": P
RINT" PRESS <S> TO START"
2080 QQ$=INKEY$: IF QQ$="" THEN 2
080
2081 IF QQ$="S" THEN GOTO 40 ELS
E GOTO 2080

```



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product as listed below.

All items include post and packing.

Item #	CoCo Hardware Description	Price
G 001	The CoCoConnection - Use your CoCo to control models, alarms - anything electrical	\$206.00
G 002	Video Amplifier with sound - attach your CoCo 1 or 2 to a Video monitor	\$35.00
G 003	The Probe - A temper- ature sensing unit you plugin to the joy stick port.	\$49.95
G 004	64K Upgrade Kit - up- grade your CoCo2's memory to 64K!	\$55.00

Item #	CoCo Software Description	Price
G 1001	Say the Words - two Curriculum based speller programs for your Tandy Speech / Sound Pack (32K ECB)	\$29.95

Item #	The CoCo 3 Tape/Disk	Price
G 1002	# 1	\$16.00
G 1003	# 2	\$16.00
G 1004	# 3	\$16.00

Item #	The Best of CoCo0z Description	Price
G 1005	# 1 Education	\$16.00
G 1006	# 2 Part 1 16K Games	\$16.00
G 1007	# 2 Part 2 32K Games	\$16.00
G 1008	# 3 Utilities	\$16.00
G 1009	# 4 Business	\$16.00
G 1010	# 5 Adventure Games	\$16.00
G 1011	# 6 Preschool Edn	\$16.00
G 1012	# 7 Graphics	\$16.00
G 1013	# 8 16K Games	\$16.00
G 1014	# 9 32K Games	\$16.00

G 1015	#10	Education	\$16.00
G 1016	#11	Education (Disk only)	\$16.00

Item #	Tandy and IBM PC Hardware Description	Price
Q 001	Colour Monitor (DTX 2001)	\$680.00
Q 002	Mono Monitor	\$190.00
Q 003	Mouse	\$90.00
Q 004	80286 Speed Card	\$550.00

Item #	Tandy and IBM PC Software Description	Price
Q 1001	dBase II	\$1043.00
Q 1002	dBase III	\$1470.00
Q 1003	Sidekick	\$215.00
Q 1004	Turbo Pascal 8087	\$261.00
Q 1005	Turbo Pascal BCD & 8087	\$244.00
Q 1006	Crosstalk	\$306.00
Q 1007	Lotus 123	\$1054.00
Q 1008	Wordstar 2000+	\$927.00
Z 2001	Webster's New World Writer	\$249.00
Z 2002	Webster's Spelling Checker	\$89.95
Z 2003	Webster's Thesaurus	\$89.95
Z 2004	Windowword	\$209.00
Z 2005	Ready	\$99.00
Z 2006	Thinktank	\$385.00

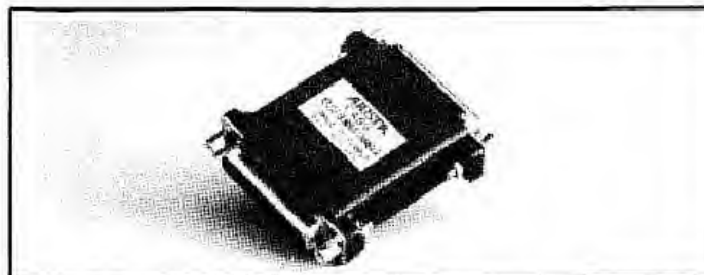
Item #	CAD Packages Description	Price
Z 2007	TURBOCAD (V 1.4)	\$399.00

Item #	Trade Business Packages Description	Price
Z 2008	The Motor Trade Package	\$99.00
Z 2009	The Professional's Pack	\$99.00
Z 2010	The Retailer's Package	\$99.00
Z 2011	The Rental Package	\$99.00

Item #	Accounting Description	Price
Z 2012	Asset Manager	\$1170.00
Z 2013	Cash Desk/Finance Desk	\$399.00
Z 2014	System 4	\$645.00
Z 2015	C.F.A. Plus	\$395.00

Item #	Databases Description	Price
Z 2016	Omnus3 IBM-Single user (Multi user versions are available)	\$495.00

Item #	Spreadsheets Description	Price
Z 2017	Logistix	\$399.00



ARISTA RS232 - Female to Female Gender Changer.

Fun		
Item #	Description	Price
Q 1020	Ancient Art of War	\$96.00
Q 1021	Print Shop	\$119.00
Q 1022	Gato	\$68.00
Q 1023	Sargon III	\$96.00
Q 1024	Zork I	\$79.00
Q 1025	Zork II	\$79.00
Q 1026	Zork III	\$79.00
Q 1027	Trinity	\$79.00
Q 1028	Ballyhoo	\$79.00
Q 1029	Hitch Hicker's Guide to the Galaxy	\$79.00
Q 1030	Crossword Magic	\$68.00
Q 1031	The American Challenge	\$68.00
Q 1032	Balance of Power	\$89.00
Q 1033	Racter	\$79.00
Q 1034	Jet	\$114.00
Q 1035	Moonmist	\$79.00
Q 1036	Shanghai	\$68.00
Q 1037	Championship Golf	\$89.00
Q 1038	Borrowed Time	\$68.00
Z 2018	The Great International Paper Airplane Construc- tion Kit	\$49.95
Z 2019	Star Trek	\$49.95
Z 2020	Championship Boxing	\$69.95
Z 2021	Ultima II	\$69.95
Z 2022	Decision in the Desert	\$69.95
Z 2023	F-15 Strike Eagle	\$69.95
Z 2024	Kings Quest	\$69.95
Z 2025	Mean 18	\$69.95
Z 2026	Boulderdash	\$49.95
Z 2027	Boulderdash II	\$49.95
Z 2028	Conflict in Vietnam	\$69.95
Z 2029	Dambusters	\$69.95
Z 2030	Kings Quest II	\$69.95
Z 2031	PSI-5 Trading Company	\$69.95
Z 2032	Silent Service	\$69.95
Z 2033	Solo Flight	\$69.95
Z 2035	Star Fleet	\$59.95

Education

Item #	Description	Price
Z 2036	Chem Lab	\$69.95
Z 2037	Creature Creator	\$59.95
Z 2038	Crypto Cube	\$59.95
Z 2039	Decimal Dungeon	\$49.95

Z 2040	Donald Duck's Playground	\$59.95
Z 2041	European Nations and Locations	\$59.95
Z 2042	Fraction Action	\$49.95
Z 2043	Math Maze	\$59.95
Z 2044	Mickey's Space Adventure	\$69.95
Z 2045	Mission Algebra	\$59.95
Z 2046	Race Car 'Rithmetic	\$49.95
Z 2047	Remember!	\$89.95
Z 2048	Ships Ahoy	\$59.95
Z 2049	Spellagraph	\$59.95
Z 2050	Spellakazam	\$59.95
Z 2051	Spellicopter	\$59.95
Z 2052	Ten Little Robots	\$49.95
Z 2053	Winnie The Pooh in the 100 Acre Wood	\$69.95

Miscellaneous Items

Item #	Description	Price
G 2001	Box of 10 DSDD Disks	\$19.00
	10 Boxes plus (per box)	\$16.10
G 2002	Blank C30 Cassettes 12 Cassettes	\$2.00 \$18.00
G 2003	Tape cases, 12 for	\$5.00
G 2004	Help - Manual for CoCo	\$9.95

Modems

Item #	Description	Price
D 001	Manual 1200/75 baud plus 300/300 modem	\$269.00
D 002	IBM Half Card 1200/75 & 300/300 (Auto dial - auto answer)	\$370.00
D 003	Desktop 1200/75 & 300 /300 baud modem (Auto dial - auto answer)	\$425.00

Terminal Programs

Item #	Description	Price
G 1017	CoCoTex - Videotex pac (Viatel) for all CoCos On Tape	\$79.95
G 1018	CoCoTex as above on disk	\$79.95
G 1019	Vtex 2 - Videotex pac for IBM Compatibles	\$225.00
G 1020	Supertex 2 for Amiga & Atari 520 ST (specify)	\$99.95
G 1021	Interlink - Videotex software for IBM PC's and compatibles	\$94.95

Modems/Software/Cable

Item #	Description	Price
G 005	CoCoTex with cable and manual modem (Specify disk or tape)	\$295.00
G 006	CoCoTex with cable and auto dial modem (Specify disk or tape)	\$451.00
G 007	Interlink with cable and manual modem	\$385.00
G 008	Vtex 2 with half card auto modem	\$555.00
G 009	Vtex 2 with desktop auto modem and cable	\$720.00

Other Hardware

Item #	Description	Price
A 001	Gender Changer - Male to Male	\$12.45
A 002	Gender Changer Female to Female	\$12.75
A 003	RS232 Data Switch with Tester	\$99.95

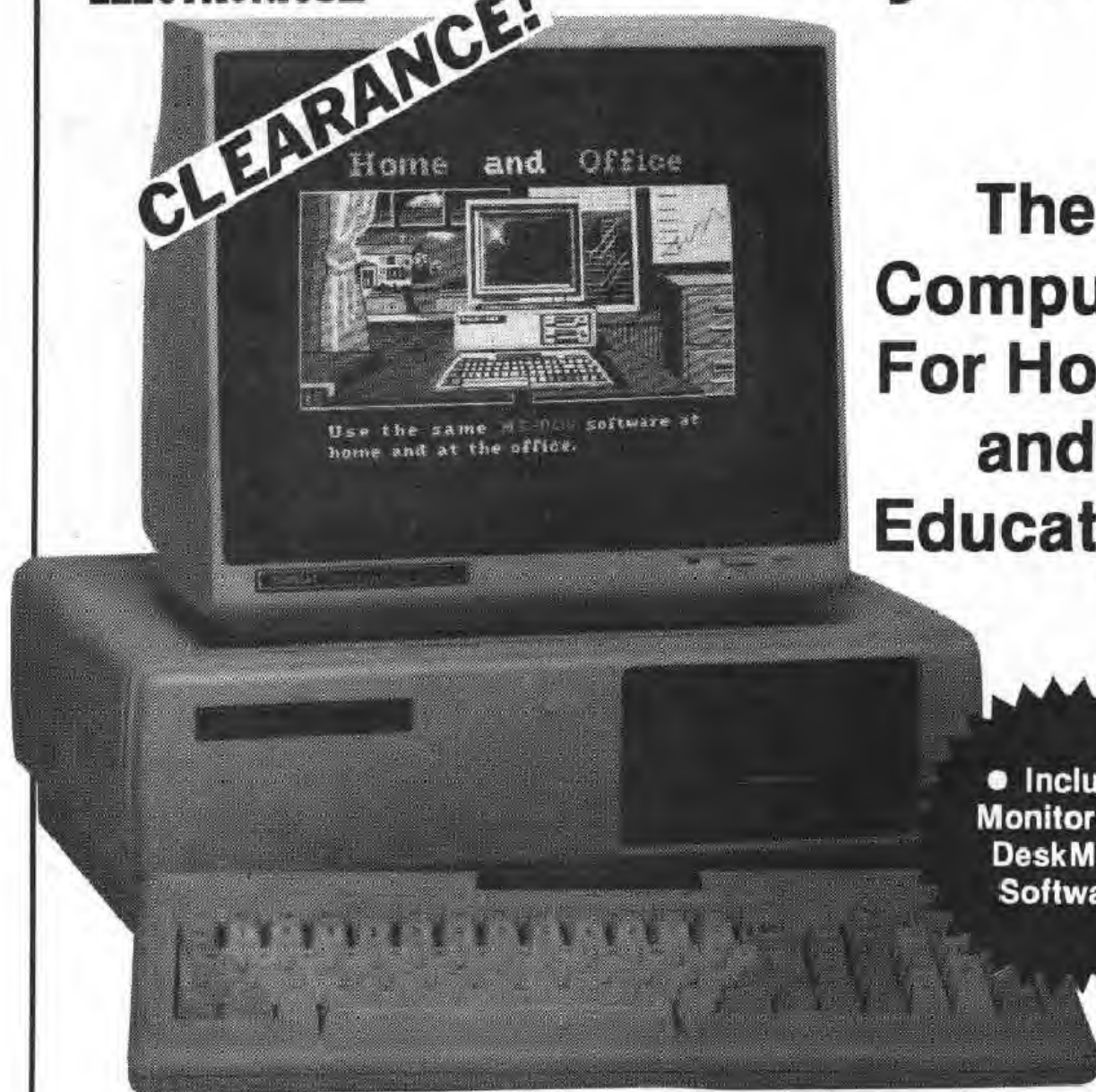


ARISTA DATA SWITCH.

Tandy The Tandy 1000

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SPECIFICATIONS

Microprocessor: Intel 8088 processor. Clock speed, 4.77 MHz. Operating system: Includes Microsoft's advanced MS/DOS 2.11 with BASIC Memory: 128K RAM, expandable to 640K. **Keyboard:** 90-key sculptured, including numeric keypad. Twelve programmable Special Function keys. **Video Display:** Optional high-resolution, non-glare 30.48cm monochrome (green) or color monitor, 80 or 40 characters per line by 25 lines. High-resolution monochrome and color graphics (displaying 8 colors selected from 16). **Disk Drives:** One built-in double-sided, double density, 360K (formatted) thin-line 13-34cm mini-floppy, 48 tracks per inch. **Internal Expansion:** (1) Three user-accessible IBM PC-compatible 25cm card slots, second 360K Floppy Disk Drive. **External Connections:** (2) Standard parallel printer port. (3) Monochrome monitor. (4) Light pen adapter. Two joysticks. (5) RGBI Color Monitor. (6) Composite video and audio. **Power:** 240 VAC, 50Hz.

This home and education computer package offers not only the exceptional capabilities of the Tandy 1000 IBM* compatible PC — it also includes DeskMate application software and the VM-Monochrome Monitor! With 128k RAM expandable to 640k and a clock speed of 4.7MHz. Phosphor green VDU displays 80 x 25 text and 640 x 200 graphics. 25-1000/28-3211

DeskMate Multi-Function Disk Software

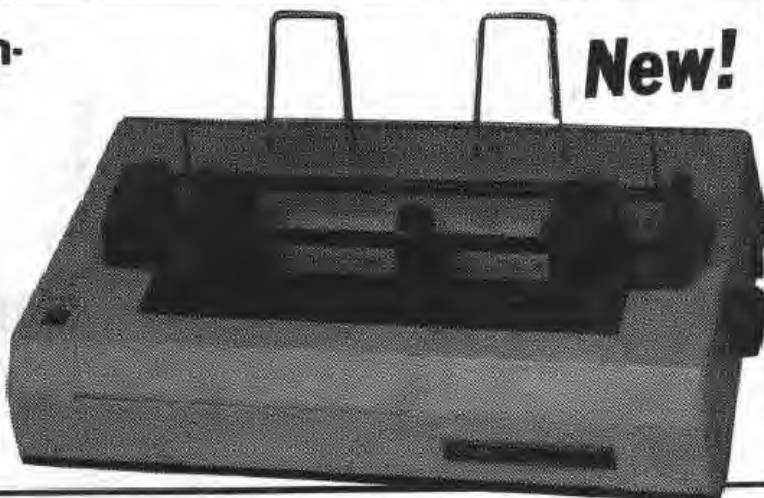
Six excellent application on one disk: **Calendar** has a diary and reminder alarm. **Text** lets you edit and compose texts with ease. **Filer** compiles and retrieves data. **Worksheet** translates intricate calculations to solutions. **Mail** for intra-computer communications. **Telecom**; using an optional modem, the user can send/receive messages via phone.

*IBM — Registered Trademark, International Business Machines Corp.

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DMP 106. IBM Compatible! This Bi-directional printer is ideal for data processing and general-purpose use. Prints 80 upper and lower case characters per line (8 x 9 matrix) at 43 lines per minute at 10 characters per inch. Prints 80 characters per sec. 26-2802



Deluxe Joystick

49⁹⁵
EACH

A. Our Best! For accurate, speedy cursor control. 26-3012



Printview Ruler

9⁹⁵

B. For enlarging print. With standard measurements. 26-1313



Color Mouse

79⁹⁵

C. Adds speed and ease to games and graphics creation. 26-3025



Flowchart

7⁹⁵

D. Template makes all your preproduction easier. 26-1312



Joysticks

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PAIR

E. Budget priced joystick for fast 360° movement!

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KEYBOARD SKILLS

GAME/EDUCATION

32K ECB

by Alan Bridges

HERE IS A PROGRAM called "Keyboard Skills No.2" which I have written as an entry for the games competition.

A few years ago when I first started programming on my old MC-10, I used to run a program call "Keyboard Skills" sold by Tandy for that machine - I've no doubt you've used it yourself.

For the past three years I've been using a 64K E.C.B. CoCo, so I decided it was time this game was revitalized in hi-res graphics on the CoCo.

(I found it very useful for the little ones in letter recognition)

After initialization a title screen is shown and the player is ask to select the level of play (from 1 to 8).

This is in fact the speed at which the 'aliens' descend the screen.

After this the playing screen appears and 'aliens' at the top will destroy the letters at the bottom if they are allowed to get that far.

They are stopped by pressing the keyboard letter directly below the alien.

When thirty (30) letters have been destroyed or saved a report is given on the letters destroyed. From there press <ENTER> to play again.

I hope you enjoy my work. It will I think be of some use to readers with small children learning their alphabet.

The Listing:

```

2 GOTO 10
3 SAVE"251:3":END'1
10 REM *****
    * KEYBOARD SKILLS NO.2 *
    *           BY           *
    *   ALAN BRIDGES       *
    *   APRIL 1987        *
    *****
20 POKE65495,0:GOSUB 9000
30 REM DRAW MAIN SCREEN*****
35 PMODE3,1:FCLS3:SCREEN1,0:Z=1
36 GOSUB200:S=20:C=2
40 FOR A=11 TO 206 STEP48
45 PUT(A,2)-(A+40,26),I,PSET
50 X(2)=A
55 C$=R$(Z):X=A+5:Y=160:GOSUB850
60 Z=Z+1:NEXT A
70 REM MAIN LOOP*****
75 M=RND(5)
80 PLAY"L255T255;O=M;"*STR$(M*2)
85 ON M GOSUB250,260,270,280,290
86 IF W=10 THEN 600
87 IF H+W=30 THEN 600
90 IN$=INKEY$:IF IN$<>"" THEN GO
SUB 120
100 GOTO 70
120 REM CHECK IF RIGHT KEY***
125 FOR CH=1 TO 5
128 COLOR3
130 IF R$(CH)=IN$ THENPLAYP2$:NU
=CH:R$(CH)="" :H=H+1:GOSUB200:LIN
E(X(NU),Y(NU))-(X(NU)+40,Y(NU)+2
4),PSET,BF:LINE((NU-1)*48+11,160
)-(NU-1)*48+51,190),PSET,BF:Y(N
U)=2:GOSUB200:GOSUB350:RETURN EL
SE NEXTCH: SOUND1,5:RETURN
200 REM RANDOM LETTER PICK****
205 FOR C=1TO5:IFR$(C)="" THEN N
EXTC ELSE R$(C)=CHR$(RND(26)+64)
:NEXTC
210 RETURN
250 REM MOVE #1
252 Y(1)=Y(1)+Q:PUT(X(1),Y(1))-(
X(1)+40,Y(1)+24),I,PSET:IF Y(1)>
B THEN 300 ELSE RETURN
260 REM MOVE #2
262 Y(2)=Y(2)+Q:PUT(X(2),Y(2))-(
X(2)+40,Y(2)+24),I,PSET:IF Y(2)>
B THEN 300 ELSE RETURN
270 REM MOVE #3
272 Y(3)=Y(3)+Q:PUT(X(3),Y(3))-(
X(3)+40,Y(3)+24),I,PSET:IF Y(3)>
B THEN 300 ELSE RETURN
280 REM MOVE #4
282 Y(4)=Y(4)+Q:PUT(X(4),Y(4))-(
X(4)+40,Y(4)+24),I,PSET:IF Y(4)>
B THEN 300 ELSE RETURN
290 REM MOVE #5
292 Y(5)=Y(5)+Q:PUT(X(5),Y(5))-(
X(5)+40,Y(5)+24),I,PSET:IF Y(5)>
B THEN 300 ELSE RETURN
300 REM ALIEN TOO LOW** A HIT**
305 COLOR3
306 FOR A=1 TO 5:SCREEN1,1:FOR=
1TO30:NEXTT:SCREEN1,0:FOR=1TO30
:NEXTT:PLAYP1$:NEXTA
310 V=W+1:FORK=1TO5:IF Y(K)=>B T
HEN NU=K:ITS(W)=R$(K):R$(K)="" :Y
(NU)=2:LINE((NU-1)*48+11,140)-(
NU-1)*48+51,190),PSET,BF:GOSUB20
0:GOSUB350:RETURN ELSE NEXT K:RE
TURN
350 REM DRAW NEW LETTER ***
360 C=2:S=20:Y=160:X=X(NU)+5:C$=
R$(NU):GOSUB850:IN$="" :RETURN
600 REM DISPLAY REPORT****
605 SCREEN1,1:COLOR2,3
610 PCLS1:C$="REPORT":X=75:Y=20:
S=16:GOSUB8500
615 POKE65494,0:SOUND163,2:SOUND
141,2:SOUND163,2:SOUND141,2:SOUN
D163,2:SOUND141,2:SOUND100,5
620 LINE(0,0)-(255,190),PSET,B:L
INE(75,42)-(187,42),PSET
630 C$="THESE ARE THE LETTERS":S
=8:X=30:Y=60:GOSUB8500
640 C$="THAT YOU MISSED":X=55:Y=
80:GOSUB8500:
650 IF W=0 THEN C$="NONE":X=75:Y
=115:S=24:C=2:GOSUB8500:GOTO710
660 AN$=""
670 FOR J=1 TO W
680 AN$=AN$+T$(J)
690 NEXT J
700 C$=AN$:C=4:LL=LEN(C$):X=128-
(LL*20)/2:Y=120:S=16:GOSUB8500
710 C=2:C$="PRESS ENTER TO GO AG
AIN":X=20:Y=165:S=8:GOSUB8500
720 IN$=INKEY$:IF IN$<>CHR$(13)
THEN 720 ELSE PLAYP1$:RUN

```

continued on page 50

CHURCH

16K ECB

by Mal McLaughlan

ORGAN



THE ADVENT OF THE Rainbow program "Music+", and others like "Musica" has made possible the use of 4-part harmony in CoCo music.

A later enhancement to "Music+" has made it a simple matter to change the waveform of the completed piece, to simulate various musical instruments.

The default waveform setting built into the "Music+" program is for the organ, so it didn't take a lot of changing to make the old church favorite "Lead Kindly Light" sound something akin to a cathedral rendition!

It will depend on your TV or monitor audio quality, but to me it sounds pretty good.

I have included two different tunes in the one program, both of which lend themselves perfectly to the organ, but the second tune is by far the best known.

If you haven't got "Music+" but you do have the tape of this month's programs, just (C)LOADM "LKLIGHT" and EXEC.

The Listing:

COL:	LEN	V1	V2	V3	V4
1:	1	C4#	G3#	F3	0
2:	2	C4#	A3#	F3	A2#
3:	2	D4#	C4	G3#	G2#
4:	2	F4	C4#	G3#	C3
5:	2	D4#	D4#	G3#	C3
6:	2	F4#	C4#	A3#	A2#
7:	2	F4	C4#	G3#	C3#
8:	2	D4#	C4	F3#	D3#
9:	2	C4#	G3#	F3	0
10:	2	A4#	C4#	A3#	F3#
11:	2	A4#	F4#	A3#	F3#
12:	2	G4#	F4	C4	G3#
13:	2	A4#	D4#	C4	G3#

14:	2	C4#	C4#	A3#	0
15:	2	C4#	C4	G3#	0
16:	1	C4#	D4#	A3#	F3#
17:	1	F4	C4#	G3#	C3#
18:	2	C4#	F3	A2#	0
19:	2	F4	C4	F3	G2#
20:	2	G4	E4	C4	C3
21:	2	G4#	F4	C4	F3
22:	2	G4	E4	C4	C3
23:	2	A4#	F4	C4#	A2#
24:	2	G4#	F4	C4	F3
25:	2	G4	E4	A3#	G3
26:	2	F4	C4	G3#	0
27:	2	C5#	F4	A3#	0
28:	2	G4#	F4	C4	F3
29:	2	C5	E4	C4	G3
30:	2	C5	E4	C4	C3
31:	2	F4	C4	D3	0
32:	2	F4	A3#	0	0
33:	2	G4	C4	A3#	E3
34:	2	G4	C4	G3	E3
35:	1	A4	F4	C4	F3
36:	2	F4	C4	A3	D3#
37:	2	A4#	F4	A3#	C3#
38:	2	A4	D4#	C4	C3
39:	2	C5	F4#	D4#	A2#
40:	2	F4	C4	A2	0
41:	2	C5#	F4	A3#	A2#
42:	2	C5	F4#	D4#	A2#
43:	2	C5	F4#	D4#	A3#
44:	2	A4#	F4	C4#	G3#
45:	2	D5#	D4#	A3#	F3#
46:	2	D5#	D4#	A3#	F3
47:	2	C5#	D4#	A3#	F3#
48:	2	C5#	D4#	A3#	D3#
49:	2	C5	D4#	C4	G3#
50:	2	C5	D4#	C4	G2#
51:	2	A4#	F4#	C4#	A2#
52:	2	A4#	F4#	D4#	C3
53:	2	G4#	F4	D4#	C3#
54:	2	G4#	F4	G3#	C3#
55:	2	G4#	F4	C4#	C3#
56:	2	C5#	F4#	C4#	D3#
57:	2	G4#	C4#	C4#	F3
58:	2	F4#	C3#	A3#	F3#
59:	1	F4	C4#	G3#	0
60:	2	D4#	C4	G3#	G2#
61:	2	D4#	C4	F3#	G2#
62:	1	C4#	G3#	F3	C3#
63:	1	0	0	0	0

COL:	LEN	V1	V2	V3	V4
64:	1	B4	G4	D4	G3
65:	2	B4	G4	D4	G3
66:	2	B4	G4	D4	G3
67:	1	C5	G4	E4	G3
68:	2	B4	G4	D4	G3
69:	2	B4	F4#	C4	D3
70:	2	A4	F4#	C4	D3
71:	2	G4	B3	D3	0
72:	2	A4	F4#	A3	D3
73:	1	E4	G4	G3	0
74:	2	G4	B3	G3	E3
75:	1	A4	E4	C4	C3
76:	1	F4#	D4	C4	D3
77:	1	G4	D4	B3	G3
78:	1	B4	G4	D4	G3
79:	2	B4	G4	D4	G3
80:	2	B4	G4	D4	G3
81:	1	C5	G4	E4	G3
82:	2	B4	G4	D4	G3
83:	2	B4	F4#	C4	D3
84:	2	A4	F4#	C4	D3
85:	2	G4	B3	D3	0
86:	2	A4	F4#	A3	D3
87:	1	B4	B4	G4	G3
88:	2	G4	B3	G3	E3
89:	1	A4	E4	C4	C3
90:	1	F4#	D4	C4	D3
91:	1	G4	D4	B3	G3
92:	1	A4	F4#	C4	D3
93:	2	A4	F4#	C4	D3
94:	2	B4	G4	B3	D3
95:	1	C5	F4#	A3	D3
96:	1	A4	F4#	D4	C4
97:	2	D5	G4	D4	B3
98:	2	C5	F4#	D4	A3
99:	2	B4	G4	D4	G3
100:	2	A4	F4#	D4	D3
101:	1	B4	G4	D4	G3
102:	2	D5	G4	D4	B3
103:	1	E5	G4	C4	0
104:	1	D5	G4	D4	B3
105:	1	C5	F4#	D4	A3
106:	2	B4	G4	D4	G3
107:	2	D5	A4	E4	C3
108:	2	C5	A4	E4	C3
109:	2	B4	G4	D4	D3
110:	2	A4	F4#	C4	D3
111:	1	G4	B3	G3	0

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JOH & CAPTAIN KREMMEN

16K ECB (Joh & Kremmen)
/ CoCo 3 (3Joh)

Graphics

by Damien Clarke

I WROTE THESE PROGRAMS about a year ago, intending to put it in last year's graphics competition. Now I have converted one program ("3JOH/BAS") so it uses the 320 by 192 CoCo 3 screen. This is my program for the current competition.

I copied this from a political cartoon by Zanetti, who must be one of the best cartoonists in Australia, second to Pryor. I started by plotting a point on the screen and that's how I finished.

Programs like this teach you more about graphics programming than any book or course you could ever have in your life.

There are two versions of this program. One for the CoCo 1 & 2 users, and a converted version for the CoCo 3.

I also wrote a program that drew the head and shoulders of Captain Kremmen, but the disk that I had stored it on crashed. All that is left is an image stored in a binary file called "KREMMEN".

The Listing:

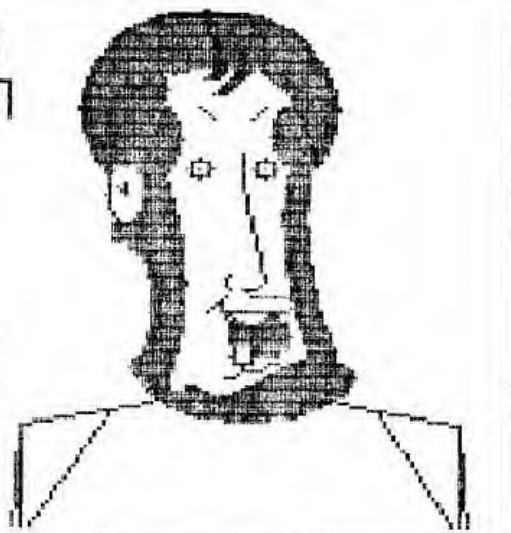
```
1 '*****3JOH*****
* *****DAMIEN CLARKE*****
* *****12/05/87*****
*
2 GOTO 10
3 SAVE"247A:3":END'6
10 HSCREEN2:HCLS1:HCOLOR0
20 HDRAW"BM100,36S9R5D3R3U3R3D3R
3U3R3D3R3U3R3D3R3U3R5G2D8L25U8H2
BM116,100F3D6G4BM167,80DULBM171,
80R15F15D35BM171,86R10F10D15G10H
10U25F20H20D5F20H20D5F17H17D5F15
H15D5F13H13D5BM183,85F15H15BM171
,142G8L30BM153,108D23"
30 HDRAW"BM128,59F3L2H3L10G2FE2R
3L3G2G2D5F2E3F3E4R2F2BGH2G5H3G2F
EFD3L2U3RDURD3L4GD7F3U7R6U2L7D2U
2R7U5E2F2L2DUL2R3D3L3DR3FHL3DR3F
HL3DR3FHL3D8RL8D2R5FHL5G5D4R2E8
```

```
U2D3E8U5D5FE8U7D2EFU6E2F2D3G4BM1
61,76E3F3BM161,72E3F3BM160,58E3R
5DL5G2F2L2F2BM127,120U3R2EU2
40 HDRAW"BM193,163G13L35U14H5U4E
3UELGLG2G3D4R3D3U3R2D3L5U3D4R5D2
U2R2D2L7U2D4R6D2U2R2D2L8U2D4R5D2
U2R2D2L7U2D4R4D2U2R2D2L6U2D4R10"
50 HPRINT(0,1),"In Queensland we
throw the bent ones out"
1000 EXEC44539
```

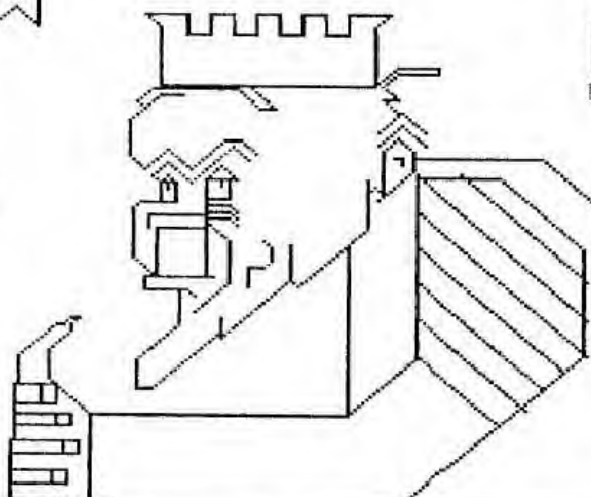
The Listing:

```
1 '*****JOH*****
* *****DAMIEN CLARKE*****
* *****12/05/87*****
*
2 GOTO 10
3 SAVE"247:3":END'6
10 PMODE4,1:SCREEN1,1:PCLS1:COLO
R0
```

CAPTAIN
KREMMEN



IN QUEENSLAND WE
THROW
THE
BENT
ONES
OUT



```
20 DRAW"BM100,36S9R5D3R3U3R3D3R3
U3R3D3R3U3R3D3R3U3R5G2D8L25U8H2E
M116,100F3D6G4BM167,80DULBM171,8
0R15F15D35BM171,86R10F10D15G10H1
0U25F20H20D5F20H20D5F17H17D5F15H
15D5F13H13D5BM183,85F15H15BM171,
142G8L30BM153,108D23
30 DRAW"BM128,59F3L2H3L10G2FE2R3
L3G2G2D5F2E3F3E4R2F2BGH2G5H3G2FE
FD3L2U3RDURD3L4GD7F3U7R6U2L7D2U2
R7U5E2F2L2DUL2R3D3L3DR3FHL3DR3FH
L3DR3FHL3D8RL8D2R5FHL5G5D4R2E8U
2D3E8U5D5FE8U7D2EFU6E2F2D3G4BM16
```

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BASIC

PART 2

by Johanna Vagg

I SAID THAT SOUND will be the topic in Part 2. Before we begin, I would like to recommend that you learn the 'basics' of EDITing, if you haven't used that command yet.

I know there are those who begin at the beginning ... which means they do not reach EDIT for some time. (Chapter 14 in the CoCo 3 Manual)

The two EDIT keys I use most are C for change, and X for extend.

To illustrate how they are used, we can begin writing a SOUND program:

```
10 FOR S=1 TO 155
20 SOUNDS,1
30 NEXT
```

Now RUN. Then type EDIT 10 and press ENTER. Press the spacebar until the cursor lines up with the 1 in 155; press C (for change) and type 2. Press ENTER and RUN the program again.

There are 255 different SOUNDS or tones. The second number is for the length of the tone.

This can be a number from 1 to 255 too. We don't really want to hear all of those SOUNDS again, so let's Xtend the line. Type EDIT 10. Press X, then type STEP 10. Press ENTER and RUN again.

There! You've written AND EDITed a SOUND program. Let's add to it:

```
40 FOR S=255 TO 1 STEP-1
50 SOUNDS,1
60 NEXT
```

When 'stepping backwards', you need to use STEP, even if you are only 'stepping' by one. You didn't want all those SOUNDS?

So EDIT it! Add a zero to the end of line 40. Then to drive everyone crazy, add another line:

```
70 GOTO 10.
```

Or better still, try this one:

```
10 CLSRND(8)
20 SOUNDNRD(255),1
30 GOTO10
```

That one is guaranteed to drive mothers crazy.

When you were EDITing, you didn't need to keep pressing the spacebar to move forward. There is a shortcut. There are a lot more possibilities with EDIT, which you will find in the manual. If you have the EDIT command, you have ECB and that means you also have PLAY, which is much more suitable for writing music.

SOUND can and may be used to play even classical music as Angus Ginters proved in his program which appeared on CoCoOz #13. At that time the CoCoOz programs were not printed in a magazine, they were only presented on tape.

The length really only mattered to the author - he (or she!) was the only one who needed to key it in. Here is a short sample from Angus' program, CLASSICFavourites:

```
10 SOUND108,4:SOUND78,4:SOUND58
,4:SOUND32,4:SOUND58,4:SOUND78,
4
20 SOUND108,4:SOUND78,4:SOUND58
,4:SOUND32,4:SOUND58,4:SOUND78,
4:SOUND108,4:SOUND78,4:SOUND108
,4:SOUND125,4:SOUND78,4:SOUND12
5,4:SOUND108,4:SOUND78,4:SOUND5
8,4:SOUND32,4
30 FOR X=1 TO 100:NEXT X
40 SOUND108,4:SOUND78,4:SOUND58
,4:SOUND32,4:SOUND58,2:SOUND78,
2:SOUND58,2:SOUND78,2:SOUND108,
4
50 SOUND78,4:SOUND58,4:SOUND32,
4:SOUND58,2:SOUND78,2:SOUND58,2
:SOUND78,2:SOUND108,4:SOUND78,4
:SOUND108,4:SOUND125,4:SOUND78,
4:SOUND125,4:SOUND108,4:SOUND78
,4:SOUND58,4:SOUND32,4
```

Sounds great or.. SOUND's great! (Subtle difference there.)

The SOUND values used here represent notes, eg 32 is G and 78 is B. See the manual for a full list.

To see a shorter method of using SOUND in music, I would like to refer you to MICOMAS in December 1985 CoCo (Mico

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FOUR-STROKE ENGINE

GRAPHICS

32K ECB

by Erin Kersten

FOUR-STROKE ENGINE is yet another entry into the graphics competition, from the Kersten people.

This graphics entry depicts the inners of a four stroke engine, moving parts and all.

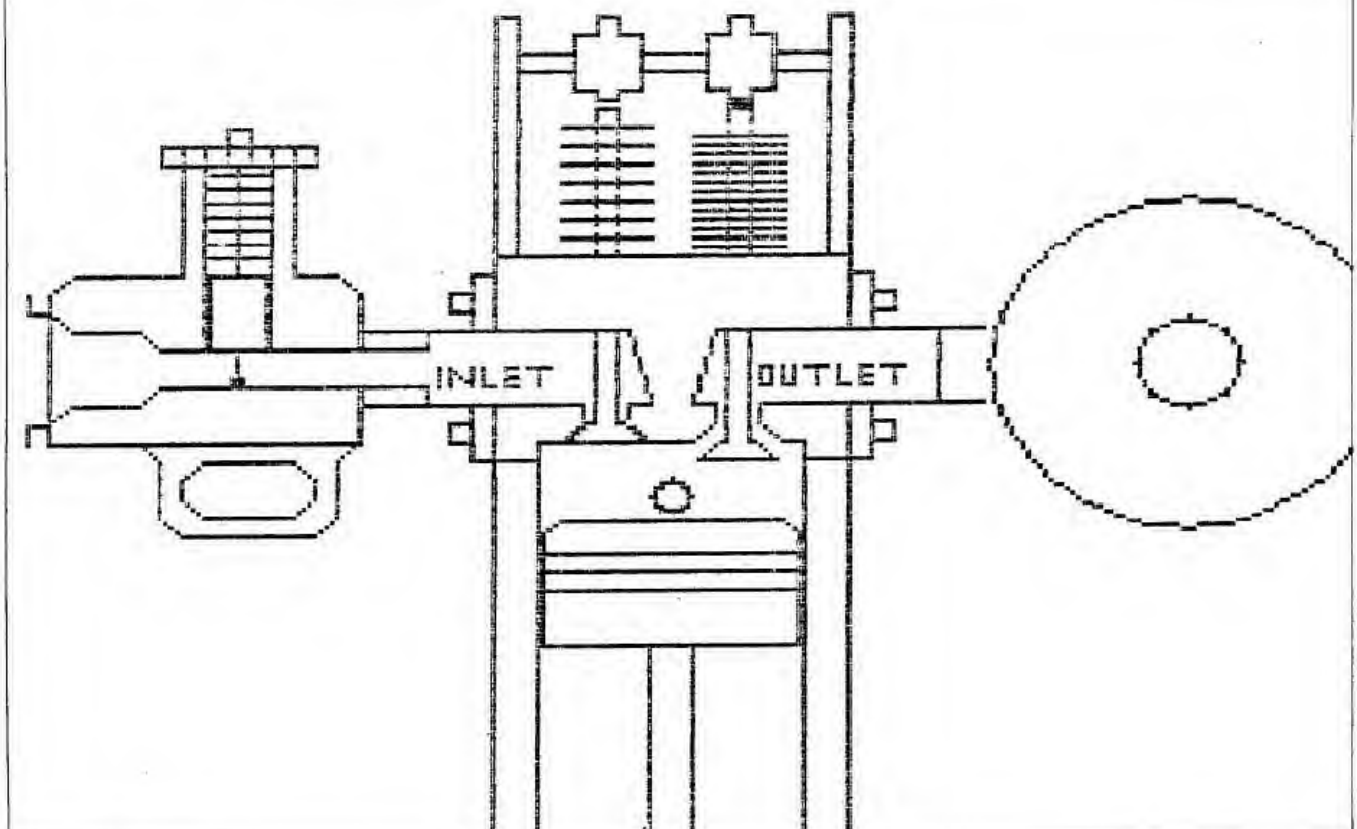
So you could say it is almost animation, or?

The Listing:

```
0 CLS
1 '****four-stroke-engine*****
  *****eric kersten*****
  *****2\6\87*****
2 GOTO 6
3 SAVE"262B:3":END'6
4 '*****
6 PRINT@192+5,"PLEASE WAIT ONE M
  OMENT";
20 PMODE4:PCLS1:COLOR2
30 LINE(0,0)-(256,192),PSET,B
40 DRAW"BM92,64;M156,64;M156,80;
  M132,80;M128,96;M132,96;M132,100
  ;M128,104;M120,104;M116,100;M116
  ,96;M120,96;M116,80;M92,80;M92,6
  4
```

```
50 DRAW"BM148,108;R8
60 DRAW"BM82,88;D4BR2U4F4U4BR2D4
  R2BR2U4R2L2D2R2L2D2R2BR4U4L2R4;B
  M140,88;D4R2U4L2R2D4BR2U4D4R2U4D
  4BR4U4L2R4L2D4BR4U4D4R2BR2U4R2L2
  D2R3L2D2R2BR4U4L2R4
70 DRAW"BM92,96;M108,96;M108,100
  ;M104,104;M100,104;M100,108;M100
  ,192;M92,192;M92,96;BM100,108L8
80 DRAW"BM140,96;M156,96;M156,19
  2;M148,192;M148,104;M144,104;M14
  0,100;M140,96
90 DRAW"BM110,80;M110,100;BM114,
  80;M114,100;BM110,100L16R14H4R1
  "
100 DRAW"BM110,64;U32R4D32"
```

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MINI PINBALL

Any CoCo or Mico
EDUCATION
by Tom Lehane

PINBALL MACHINES have been the backbone of penny arcades for many decades. Even with the advent of electronic and computer games, they still hold a place alongside these modern video amusement machines, with their steel ball noisily hitting bumpers and rolling up the player's score.

With the use of small flippers, the player attempts to keep the ball in play and avoid losing the steel ball down some of the game traps. *Mini Pinball* emulates a basic pinball machine and uses the text screen along with Color Basics' SET and RESET commands.

The flipper or paddle in this case is controlled by the DOWN ARROW and the CLEAR key.

The ball is fired into play by pressing the SPACEBAR.

Just like the real machine's steel ball is unpredictable, *Mini Pinball's* block ball is also unpredictable.

This is achieved by the use of RND(2) in lines 580 and 590.

Hitting the yellow bumper scores 10 points and by hitting the buff bumper scores 50 points.

The ball can be lost in two ways, the first is going past the flipper (paddle), the second is in the top left-hand corner.

This is the blackhole or trap for *Mini Pinball*. The game consists of 5 balls and a tally

is kept of the player's score along with the top score so other players can try and beat the best player's score. The program is suitable for Color Basic, ECB and the CoCo 3.

With a change to the flipper control keys the program will run on a MC 10 computer.

The Listing:

```

0 GOTO10
3 SAVE"244:3":END'2
10 REM *****
20 REM ---- mini--pinball ----
30 REM BY TOM LEHANE ..1987
40 REM SUIT COLOR BASIC & ECB.
50 REM *****
60 BL$=CHR$(128)
70 GOSUB 950:GOTO110
80 Z$=INKEY$
90 IF Z$<>CHR$(32) THEN 80
100 RETURN
110 CLS0
120 FOR X=3 TO 19 STEP2
130 FOR Y=3 TO 29
140 SET(X,Y,C)
150 NEXT Y
160 C=C+2
170 IF C>8 THEN C=2
180 IF C=4 THEN C=6
190 NEXT X
200 GOSUB 870
210 FOR X=30 TO 33
220 SET(X,8,5):SET(X,9,5):NEXT
230 FOR X=46 TO 49
240 SET(X,12,2):SET(X,13,2):NEXT
250 FOR X=24 TO 60
260 SET(X,2,7)
270 SET(X,30,7):NEXT
280 FOR Y=2 TO 30
290 SET(23,Y,7)
300 SET(60,Y,7):NEXT
310 FOR Y=10 TO 25
320 SET(56,Y,7):NEXT
330 PRINT@75,BL$:
340 '
350 F$=BL$+CHR$(227)+CHR$(227)+C
HR$(227)+CHR$(227)+BL$
360 FF=432
370 PRINT@FF,F$:
380 R=1:S=1
390 X=58:Y=24
400 GOSUB 80
410 B=B+1
420 PRINT@294,B:
430 SET(X,Y,7):IF Y<4 THEN 480
440 FOR G=1 TO 4:NEXT G
450 RESET(X,Y)
460 Y=Y-S
470 IF Y>4 THEN 430
480 SET(X,Y,7)
490 FOR G=1 TO 2:NEXT G
500 RESET(X,Y)
510 A$=INKEY$
520 IF A$=CHR$(10) THEN GOSUB 65
0
530 IF A$=CHR$(12) THEN GOSUB 67
0
540 Y=Y+S
550 X=X+R
560 IF POINT(X,Y)=2 THEN SS=SS+1
0:SOUND200,1:GOTO 840
570 IF POINT(X,Y)=5 THEN SS=SS+5
0:SOUND210,1:GOTO 840
580 IF Y<4 THEN R=-R:S+=RND(2)
590 IF X>53 THEN S+=S:R=-RND(2)
600 IF X<26 THEN SOUND 150,1: S=
+S:R=-R
610 IF POINT(X,Y) THEN SOUND 200
,2:GOTO 640
620 IF Y=27 THEN 700
630 GOTO 480

```

continued overpage

MINI PINBALL

from previous page

```

640 S=-S:GOTO 540
650 IF FF<429 THEN RETURN
660 FF=FF-1:PRINT@FF, F$;:RETURN
670 IF FF >439 THEN RETURN
680 FF=FF+1:PRINT@FF, F$;:RETURN
690 GOSUB 80
700 FORX=1TO5: SOUNDND(200), 1: NE
XT
710 FOR X=24 TO 58
720 SET(X,29,2)
730 FOR G=1 TO 8:NEXT G
740 RESET(X,29):NEXT
750 IF B =5 THEN 770
760 GOTO380
770 PRINT@304,"GAME OVER";
780 GOSUB 80
790 FOR Z=304 TO 312:PRINT@Z,BL$
;:NEXT Z
800 IF HS>SS THEN HS=HS:GOSUB 92
0
810 IF HS<SS THEN HS=SS:GOSUB 92
0
820 GOSUB 890:GOTO550
830 ' score
840 PRINT@482,SS;
850 S=-S

```

```

860 GOTO 550
870 PRINT@66,"m"BL$"1"BL$"n"BL$"
1";: PRINT@130,"pinball";
880 PRINT@419,"score";
890 FOR Z=482 TO 488:PRINT@Z,"-"
;
900 SOUND200,2:NEXT Z
910 PRINT@290,"ball"B;
920 PRINT@12,"high"BL$"score"HS;
930 SS=0:B=0:PRINT@295,"*";
940 RETURN
950 CLS(0)
960 PRINT@41,"mini"BL$+BL$"pinba
11";
970 FOR X=134 TO 358 STEP32
980 PRINT@X,"
";
990 NEXT
1000 PRINT@134,"DOWN ARROW & CLE
AR";
1010 PRINT@166,"KEY TO MOVE PADD
LE.";
1020 PRINT@198,"PRESS SPACE BAR
TO";
1030 PRINT@230,"FIRE BALL INTO P
LAY.";

```

```

1040 PRINT@262,"YOU HAVE FIVE BA
LLS";
1050 PRINT@294,"PER GAME. BUMPER
S=";
1060 PRINT@327,CHR$(159)" YELLOW
10 POINTS";
1070 PRINT@360,CHR$(207)" BUFF 5
0 POINTS";
1080 PRINT@452,"by"BL$"tom"BL$"1
ehane"BL$"mcmlxxxvii1";
1090 PRINT@492,"any"BL$"key";
1100 FOR DL=1TO8
1110 IF INKEY$ <>"" THEN 1180
1120 FORX=10TO52:SET(X,6,RND(8))
:NEXT:FORY=6TO25:SET(53,Y,RND(8)
):NEXT
1130 FORX=52TO10STEP-1:SET(X,25,
RND(8)):NEXT
1140 FORY=25TO6STEP-1:SET(10,Y,R
ND(8)):NEXT
1150 PRINT@492,"any"CHR$(128)"ke
y";
1160 NEXT DL
1170 C=0:GOTO 1100
1180 RETURN

```

○

FOUR-STROKE ENGINE

from page 38

```

110 FOR VS=104 TO 120
120 FOR SV=36 TO 64 STEP 4
130 LINE(VS,SV)-(VS,SV),PSET
140 NEXT SV,VS
150 DRAW"BM134,80;D20BR4U20;BM13
4,100;L1G4R14H4L1"
160 DRAW"BM134,64;U32R4D32
170 FOR RV=128 TO 144
180 FOR VR=36 TO 64 STEP 4
190 LINE(RV,VR)-(RV,VR),PSET
200 NEXT VR,RV
210 DRAW"BM92,64;U52R4D52
220 DRAW"BM152,64;U52R4D52
230 DRAW"BM106,28;U12R4U4R4D4R4D
12L4D2L4U2L4;BM130,28U12R4U4R4D4
R4D12L4D2L4U2L4;BM96,24U4R10D4L1
0;BM118,24;U4R12D4L12;BM142,24;U
4R10D4L10
240 DRAW"BM101,124;E3R40F3D24L46
U24;BM101,136;R46BU4L46BU4R46";D
RAW"BM120,148;D44R8U42
250 DRAW"BM92,68;L4D8L4U4R4D8R4L
24;BM68,96;R24L4D12U4L4U4R4D8R4
260 DRAW"BM80,96;U4L12D12G4D12G4
L24H4U12H4L16U4L4D4L4U32R4D4R4U4
E4R20U24L4U4R28D4L28;BM36,44;U4B

```

```

R4D4BR4U8R4D8BR4U4BR4D4D24R8F4D1
2R12U4
270 DRAW"BM156,68;R4D12U8R4D4L4D
4L4R24;BM156,96;R4D12L4R4U4R4U4L
4U4R20
280 CIRCLE(217,88),36:DRAW"BM172
,80;D16":CIRCLE(217,88),10
290 DRAW"BM40,44;D40L8H4L12H4D24
E4R12E4R36;BM52,44;D40R16
300 DRAW"BM46,44;D24L5D16R10U16L
10;BM46,84;D8R1U2L2D2
310 FOR CS=40 TO 52
320 FOR SC=46 TO 66 STEP 3
330 LINE(CS,SC)-(CS,SC),PSET
340 NEXT SC,CS
350 DRAW"BM28,104;R40;BM40,108R1
6F4D4G4L16H4U4E4":CIRCLE(124,116
),4

```

```

360 SCREEN1,1
370 CIRCLE(124,116),2:EXEC43345:
CIRCLE(124,116),2,3
380 DRAW"C3BM101,124;E3R40F3D24L
46U24;BM101,136;R46BU4L46BU4R46;
BM120,148;D44R8U42
390 DRAW"C2BM101,168;E3R40F3D24L
46U24;BM101,180;R46BU4L46BU4R46

```

```

400 DRAW"C3BM128,36R16;C2BM134,3
1;R4;BM128,38;R16BD4L16BD4R16BD4
L16BD4R16BD4L16BD4R16
410 DRAW"C3BM134,100;L1G4R14H4L1
420 DRAW"C2BM134,100;D4L1G4R14H4
L1U4
430 DRAW"C3BM101,168;E3R40F3D24L
46U24;BM101,180;R46BU4L46BU4R46
440 DRAW"C2BM101,124;E3R40F3D24L
46U24;BM101,136;R46BU4L46BU4R46;
BM120,148;D44R8U42
450 DRAW"C3BM134,100;D4L1G4R14H4
L1U4
460 DRAW"C2BM134,100;L1G4R14H4L1
470 DRAW"C3BM128,38;R16BD4L16BD4
R16BD4L16BD4R16BD4L16BD4R16;C2BM
128,36R16;C3BM134,31;R4
480 DRAW"C2BM110,31;R4;C3BM104,3
6;R16;C2BM104,38;R16BD4L16BD4R16
BD4L16BD4R16BD4L16BD4R16;C3BM110
,100L1G4R14H4R1;C2BM110,100;D4L1
G4R14H4L1U4
490 DRAW"C3BM101,124;E3R40F3D24L
46U24;BM101,136;R46BU4L46BU4R46;
BM120,148;D44R8U42;C2BM101,168;E
3R40F3D24L46U24;BM101,180;R46BU4
L46BU4R46
500 DRAW"C3BM110,100;D4L1G4R14H4
L1U4;C2BM110,100L1G4R14H4L1;C3BM
104,38;R16BD4L16BD4R16BD4L16BD4R
16BD4L16BD4R16;C2BM104,36;R16;C3
BM110,31;R4
510 DRAW"BM101,168E3R40F3D24L46U
24;BM101,180;R46BU4L46BU4R46
520 DRAW"C2BM101,124;E3R40F3D24L
46U24;BM101,136;R46BU4L46BU4R46;
BM120,148;D44R8U42
530 GOTO 370

```

○

STRING EDITOR MODULE

16K ECB

by John Carmichael
UTILITY

WHenever you write a program which stores information, that data is stored in the computer's memory as a string, and then kept on a cassette or disk.

In every such program you will want the opportunity to be able to change the information.

The program below gives you a simple screen editor to use whenever you need to change a string.

It is written as a MODULE. The principles behind modules are:

1. They can be added to any program as a self-contained unit
2. They have only one entry point and one exit point
3. They do not rely on any other part of the program
4. They use only the variables specified in the remarks at the beginning
5. The conditions of entry to the module are specified, and the results of passing through the module are specified.

Once a module is written, (and tested to ensure it fulfills its own specifications) it can be thereafter treated as a "black box". That is, provided you feed the module with the desired entry conditions, it will provide you with the specified result, without the programmer having to worry how it was done.

This module requires as an entry condition that the string you wish to edit is stored in F\$.

On exit the edited string is stored in H\$, (and F\$ still holds the unedited string).

In the process of editing, this module uses the following variables: H\$, G, P\$, H

It optionally also uses FLAG if you want to use a validation check. (If these variables hold data which is used by the other parts of the program you will have to change them.)

The only exit from the module is at line 8200 (simply put RETURN there if you do not wish to validate the edited string).

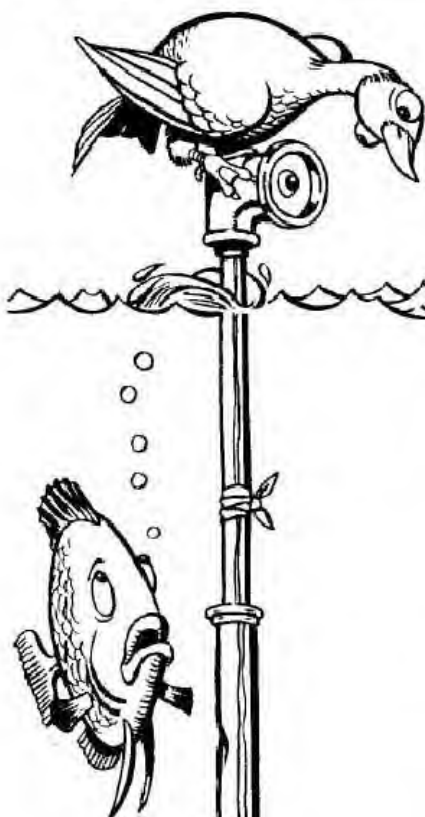
Here is a sample program to illustrate how the module might be used:

```
10 CLS:INPUT"YOUR NAME";N$
20 CLS:PRINT"YOUR NAME IS: ";N$
30 INPUT"CHANGE IT Y/N";E$
40 IF E$="N" THEN 100
50 F$=N$:GOSUB 8000 'EDIT
60 CLS:PRINT "NAME WAS: ";F$
70 PRINT" IS NOW: ";H$
80 INPUT"CONFIRM CHANGE Y/N";E$
90 IF E$="Y" THEN N$=H$ ELSE 50
100 END
```

This module should work on any model CoCo with extended BASIC, or DISK BASIC. On the CoCo 3 you'll need to revert to WIDTH 32, or there will be no cursor.

The Listing:

```
0 GOTO9
1 'JOHN CARMICHAEL 9/5/87
2 'P.O. BOX 595, TAREE 2430
3 SAVE"249:3":END'9
4 '
9 F$="*STRING EDITING MODULE*"
10 '
7980 '-----
7990 'STRING EDITOR :
7993 ' H$ HOLDING STRING
7995 ' G CURSOR POSITION
7997 ' P$ INKEY$ H= PEEK
7999 '-----
8000 CLS:G=1:H$=F$ 'F$-STRING TO
BE EDITED
8010 PRINT@224,"ORIGINAL:":PRINT
H$:PRINT:PRINT"editing controls:
@ AGAIN":PRINT" ENTER=END CLE
AR=DELETE":PRINT" DOWN=ADD SHIF
T+RIGHT=GAP"
8020 PRINT@0,H$
8030 GOSUB8300 'CURSOR
8040 P$=INKEY$:IFP$=""THEN8040
8050 GOSUB8300:IF P$=CHR$(13) TH
EN8200 'CHECK EDITED STRING
8060 IFP$=CHR$(10)THENG=1+LEN(H$
):GOTO8030
8070 IFP$=CHR$(8) AND G>1 THENG=
G-1:GOTO8030
8080 IFP$=CHR$(9) AND G<=LEN(H$)
THENG=G+1:GOTO8030
8090 IFP$=CHR$(12)THEN H$=LEFT$(
H$,G-1)+MID$(H$,G+1):GOTO8020
8100 IFP$="@ "THEN8000
8110 IFP$=CHR$(03)AND G<=LEN(H$)
THENH$=LEFT$(H$,G-1)+" "+MID$(H$
,G):GOTO8020 'INSERT GAP
8120 IFP$=CHR$(8) OR P$=CHR$(9)
continued on page 58
```

SUB HUNT

GAME 32K ECB + Joystick by John Hainsworth

SUB HUNT is a one-player game. Your objective is, like the title says, hunt subs.

You are the ship up at the top of the screen (or atop the water, if you prefer).

How to Play

* As soon as your ship starts to move press the fire button on the joystick and keep it pressed until you estimate that the charge which is NEVER visible would be deep enough to explode it.

* Exploding your depth charge involves taking your finger off the fire button and pressing the "D" key, once only.

* If the explosion is too shallow in relation to the sub then again press and keep down the fire button until ready to explode the depth charge again.

* When an explosion lines up and is forward of the sub, don't press the "D" key or the fire button -- wait until the stern (back) of your ship passes over the sub and THEN press the "D" key.

* If the explosion is too deep, then some fast fingering between the "D", "U" keys and the fire button can get you back on target.

* Level selection:

'1': You get two "test" explosions per screen.

'2': You get one "test" explosion per screen.

'3': You don't get any "test" explosions.

* The deeper the sub the less chance there is to try a test.

* If the sub is very deep the fire button should be held down until the bow (front) of your ship is just forward of the sub.

The Listing:

```
0 GOTO10
3 SAVE"179:3":END'1
10 '****LISTING FOR SUB HUNT BY
J.HAINSWORTH**BLACKTOWN**NSW****
*NOVEMBER**1986*****
20 PCLS
30 PK=65495
40 CLS:SCREEN0,1
50 GOSUB860
60 FOR YP=1024 TO 1535:POKE YP,3
2:NEXT
70 PRINT@107,"sub";:PRINT@111,"h
unt";:PRINT@160,"de";:PRINT@163,
"you";:PRINT@167,"want";:PRINT@1
72,"instructions";:PRINT@185,"y"
::PRINT@187,"or";:PRINT@190,"n";
80 YP$=INKEY$:IF YP$=""THEN 80
90 IF YP$(">")Y THEN 110 ELSE 110
0
100 ;
110 CLS:PRINT@107,"sub hunt":PRI
NT@195,"SELECT LEVEL OF DIFFICUL
TY-"
120 PRINT@227,"(1) BEGINNER":PRI
NT@259,"(2) EXPERT":PRINT@291,"(
3) NEAR IMPOSSIBLE":SCREEN0,1
130 PRINT@323,"YOUR SELECTION IS
":INPUT SE:SCREEN0,1
140 IF SE>3 OR SE<1 THEN 130
150 SC=0:MN=5
160 IF SE=1 THEN CH=57
170 IF SE=2 THEN CH=38
180 IF SE=3 THEN CH=19
190 XY$="R4U4L4U4R4BR4R4D2BD4D2L
4U8BR8R4D8L4U8BR8D8BR4H4R2E2H2L2
BR8D8R4BU4L4BU4R4"
200 XD$="U8R2F2D4G2L2BR8EU2E4BU2
BR8NR4D8R4BR4U4NU4R4ND4U4BR4D8U4
R4ND4U4NL4BR4ND8R2F2G2L2F4BR4BU8
NR4D8R4U3L2BR8BU5NE4D4NR4D4R4"
210 XQ$="D8R4U4L4BR8D4R4U4D8L2"
```

```

220 XJ$="R4L2D8L3U4BR10D4BR8U8BR
4D4L4R4D4BR4U8R4D4L4R4D4BR4U8BR4
D8BR4U2H4BR4U2D8BR4R4U4L4U4R4BR4
D8R3U4D4R3U8BR4D8R4U8L4BR8D8BR4H
4R2E2H2L2BR6R4L2D8BR6U8BR4D8U4L4
"
230 XM$="U8F4E4D8BR8L4U4R4L4U4R4
BR4D8BR4U2H4BR4U2D8"
240 GOSUB 1290
250 DIM A1(0,50), A2(0,15), A4(0,5)
, A5(0,5)
260 A=200: B=16: C=254: D=28: E=4: F=
64: G=38: H=78: M=246: N=23: O=248: P=
25
270 DRAW "BM222, 27; S4; C5L12H2R10U
2R3D2R1U4R2U2R2D6R1U2R2D2R2U2R2D
2R4U4D2R2D2R6D2L22"
280 PAINT(222, 26), 5, 5
290 DRAW "BMB, 72C5R10U4R2D4R4F2G2
L12U2L4U2"
300 PAINT(18, 73), 5, 5
310 DRAW "BM248, 25C6L2U2R2D2"
320 Z=2
330 GET(A, B)-(C, D), A1, G
340 GET(E, F)-(G, H), A2, G
350 GET(M, N)-(O, P), A4, G
360 PMODE4, 1: PCLS: SCREEN1, 1
370 COLORS
380 POKE PK, 0
390 DRAW "BM4, 12; S4; "XD$
400 DRAW "BM180, 12; "XY$
410 DRAW "BM110, 12; "XM$
420 Q=RND(112)
430 IF Q<30 THEN Q=30
440 IF Q>112 THEN Q=112
450 Q=Q-RND(5)
460 LINE(0, 29)-(256, 29), PSET
470 A=A-2: C=C-2: E=E+3: G=G+3: M=M
-2: O=O-2
480 CH$=STR$(CH)
490 K1=VAL(RIGHT$(CH$, 1))
500 K2=VAL(RIGHT$(CH$, 2))-K1
510 K3=VAL(CH$)-K2-K1
520 K3=K3/100: K2=K2/10
530 DRAW "BM80, 12"+A$(K2)+A$(K1)
540 SC$=STR$(SC)
550 K1=VAL(RIGHT$(SC$, 1))
560 K2=VAL(RIGHT$(SC$, 2))-K1
570 K3=VAL(SC$)-K2-K1
580 K3=K3/100: K2=K2/10
590 DRAW "BM230, 12"+A$(K3)+A$(K2)
+A$(K1)
600 MN$=STR$(MN)
610 K1=VAL(RIGHT$(MN$, 1))
620 K2=VAL(RIGHT$(MN$, 2))-K1
630 K3=VAL(MN$)-K2-K1
640 K3=K3/100: K2=K2/10
650 DRAW "BM150, 12"+A$(K1)
660 PUT(A, B)-(C, D), A1, PSET
670 PUT(E, F+Q)-(G, H+Q), A2, PSET
680 IF A=80 THEN MN=MN-1
690 IF MN=0 THEN GOTO 980
700 IF G>230 THEN GOTO 360
710 IF A=80 THEN GOTO 260
720 IF PEEK(65280)=126 OR PEEK(6
5280)=254 THEN Z=Z+4: PUT(M+Z, N
+Z)-(O+Z, P+Z), A4, PSET
730 PLAY "T25505C"
740 PP$=INKEY$: IF PP$="" THEN 470
750 FOR R=2 TO 10
760 IF PP$="D" THEN CIRCLE(M, N+Z

```

```

), R, 5: PLAY "T15001L30GF#FED#DC#C"
770 IF PP$="U" THEN Z=Z-2
780 NEXT R
790 FORR=10 TO 2 STEP-1: CIRCLE(M,
N+Z), R, 0: NEXT
800 IF PPOINT(M, N+Z)=5 THEN SC=S
C+50: MN=MN+1: IF SC=950 THEN GOTO
1170
810 IF PPOINT(M, N+Z)=5 THEN E=0:
G=0: F=F-2: H=H-2: PUT(E, F)-(G, H), A
2, PSET: PLAY "T180Q1L40FG#FE#CC#DC
": GOTO 360
820 PCLS: IF PP$="D" THEN CH=CH-1
830 LINE(0, 29)-(256, 29), PSET: DRA
W "BM4, 12; "XD$: DRAW "BM180, 12; "XY
$: DRAW "BM110, 12; "XM$
840 IF CH=0 THEN GOTO 980
850 GOTO 470
860 A$(1)="BRRU8NG2D8R2BR4"
870 A$(2)="BU8R4D4L4D4R4BR4"
880 A$(3)="BU8R4D4NL4D4NL4BR4"
890 A$(4)="BU4N4R4NU2D4BR4"
900 A$(5)="BU8NR4D4R4D4NL4BR4"
910 A$(6)="U8NR4D4R4D4NL4BR4"
920 A$(7)="BU8R4D2G4D2BR8"
930 A$(8)="U4NR4U4R4D8NL4BR4"
940 A$(9)="BU4U4R4D4NL4D4NL4BR4"
950 A$(0)="U8R4D8NL4BR4"
960 RETURN
970 END
980 CLS: PRINT@32, "SORRY, BUT THE
SUBS WERE TO GOOD FOR YOU"
990 PRINT "YOUR FINAL SCORE WAS"
; SC; "OUT OF THE MAX
IMUM 950"
1000 FOR TI=1 TO 2000: NEXT
1010 PRINT: PRINT@257, "HEY!! WANT
TO PLAY AGAIN (Y/N) ?"
1020 LL$=INKEY$: IF LL$="" THEN 10
20
1030 IF LL$<>"Y" THEN END ELSE M
N=5: SC=0: A=200: B=16: C=254: D=28: E
=4: F=64: G=38: H=78: M=246: N=23: O=2
48: P=25
1040 CLS: PRINT@195, "AT WHAT LEVE
L": PRINT@227, "I11 BEGINNER": PRIN
T@259, "I2 EXPERT": PRINT@291, "I3
1 NEAR IMPOSSIBLE": PRINT@323, "YO
UR SELECTION IS :-: INPUT SE
1050 IF SE>3 OR SE<1 THEN 1040
1060 IF SE=1 THEN CH=57
1070 IF SE=2 THEN CH=38
1080 IF SE=3 THEN CH=19
1090 GOTO 360
1100 CLS: PRINT "*****SUB HUNT INS
TRUCTIONS*****"
1120 PRINT "TO DROP A DEPTH CHARG
E PRESS THE FIRE BUTTON AS SOON AS
YOUR SHIP STARTS TO MOVE..the
charge is not visable until ex
ploded.. THE LONGER YOU HOLD DOWN
THE FIRE BUTTON THE DEEPER YO
U PLACE THE CHARGE."
1121 PRINT "TO TEST FOR DEPTH TAK
E YOUR FINGER OFF THE FIRE B
UTTON AND PRESS KEY [d].. THIS H
AS THE EFFECT OF OF EXPLODIN
G THE DEPTHCHARGE."
1122 PRINT: PRINT "PRESS enter FOR
MORE": SCREEN0, 1
1123 KK$=INKEY$: IF KK$="" THEN 1
123

```

```

1124 IF KK$=CHR$(13) THEN 1125 E
LSE 1123
1125 CLS: PRINT "WHEN A TEST EXPLO
SION IS ALIGNED WITH THE SUB THEN
WAIT UNTIL THE STERN OF YOUR SH
IP PASSES OVER THE SUB THEN PRES
S KEY [d] AGAIN. IF YOU PLACE A
CHARGE TOO DEEPTHEN TRY KEY [u]
TO DECREASE THEDEPTH"
1126 PRINT "THE MAXIMUM SCORE IS
950 AND YOU LOSE ONE SHIP FOR EAC
H SUB THAT GETS PAST YOU. THE GA
ME ENDS WHEN EITHER MEN OR D/
CHARGES =0"
1140 PRINT "PRESS enter TO START"
: SCREEN0, 1
1150 KK$=INKEY$: IF KK$="" THEN 11
50
1160 IF KK$=CHR$(13) THEN 110 EL
SE 1150
1170 PCLS: PMODE4, 1: SCREEN1, 1: COL
OR4
1180 DRAW "BM105, 90; S10C5R10U4R2D
4R4F2G2L12U2L4U2"
1190 PAINT(125, 92), 5, 5
1200 CIRCLE(130, 90), 40, 5
1210 CIRCLE(130, 90), 50, 5
1220 LINE(150, 50)-(110, 130), PSET
1230 LINE(154, 50)-(114, 130), PSET
1240 PAINT(116, 120), 5, 5
1250 PAINT(146, 62), 5, 5: PAINT(162
, 66), 5, 5
1260 DRAW "BM70, 30; S6C5R4U4L4U4R4
BR4D8R4U8BR4D8R2E2H2E2H2L2BR12D8
R2E2H2E2H2L2BR8D8R4U8BR4R4L4D4R4
D4L4ER10U8NL2R2BR4R4D4NR4D4R4BR
4U8R2F2G2L2F4"
1270 PLAY "T15DDFBAG"
1280 FOR T=1 TO 9000: NEXT: CLS: GO
TO 1010
1290 PCLS
1300 DIM FG(0, 10)
1310 DE=4
1320 DRAW "BM164, 4C5R10F2D4G2L10H
2U4E2": PAINT(172, 6), 5, 5
1330 GET(164, 0)-(180, 16), FG
1340 PMODE4, 1: PCLS: SCREEN1, 0
1350 DRAW "BM74, 124C5U8R2U2R2U2R4
U2R4U2R4U2R2U2R2U2R4U2R4UR4UR4UR
4UR6UR6UR4U2R4U2RU6RU6R4UR2UR6D6
R6D2L6D4R6DR2DR2D4L2D2G4L2G2L2G2
L2G2L2G2L2G2L2DL4D2L2DL2DL4DL4D2
L4D2L4D2L4D2L4D2L2H2H2": PAINT(120
, 100), 5, 5
1360 DE=DE+1
1370 PUT(108, 0+DE)-(124, 16+DE), F
G
1380 IF DE=78 THEN GOTO 1400
1390 GOTO 1360
1400 PLAY "T15001L60GF#FED#DC#C#F
ED#DC": FOR CI=0 TO 60 STEP1
1410 CIRCLE(112, 84), CI, 5
1420 NEXT CI
1430 FOR CI=60 TO 0 STEP-1
1440 CIRCLE(112, 84), CI, 6
1450 NEXT CI
1460 DRAW "BM56, 148C5E4R16D8G4U8L
16": PAINT(60, 146), 5, 5
1470 DRAW "BM60, 152R4D4R12D16G4L1
6R16U16L12U8": PAINT(68, 158), 5, 5
1480 DRAW "BM60, 164R4D4R4D4L8U4L4

```

continued on page 58

'SUPERDAG'



32K ECB

ADVENTURE

by Martin Eade

The Listing:

0 FOKE65495,0:REM **SUPER DAG 1
BY MARTIN EADE,AGE 12.COMPLETED
1/10/1986--PLEASE NOTE--SOME
ROUTINES FOR THIS PROGRAM WERE
TAKEN FROM sword quest BY ANDREW
HART**

1 DATA CORNER AREA OF GARDEN,0,2
,7,0,GARDEN,0,3,0,1,GARDEN,0,4,8
,2,MORE GARDEN,0,5,0,3,GARDEN,0,
6,9,4,FLOWER BED,0,0,10,5,MORE G
ARDEN,1,0,11,0,LAUNDRY,3,0,13,0,
PATIO AREA,5,0,0,0
2 DATA GARDEN PATH,6,0,15,0,YET
MORE GARDEN,7,0,0,0,KITCHEN,0,0,
17,0,HYGENIC BATHROOM,8,0,18,0,1
NSIDE A CLOSET. IT'S DARK!1,0,0,1
9,0,N/S PATH,10,0,21,0

3 DATA LOUNGE,0,17,22,0,HALLWAY,
12,18,23,16,YOUR OWN BEDROOM,13,
19,24,17,DAD'S STUDY,0,20,0,18,B
EDROOM(BROTHERS),0,0,26,19,PATH,
15,0,27,0

4 DATA FRONT DOORWAY(THE DOOR HA
S GONE FOR A WALK),16,0,28,0,FAM
ILY ROOM,17,24,0,0,HALL,18,0,30,
23,INSIDE CLOSET. IT'S SPOOKY!1,0
,26,0,0,2ND HYGENIC BATHROOM,20,
0,0,0

5 DATA DAD'S VEGIE PATCH,21,0,31
,0,MORE GARDEN,22,29,0,0,GARDEN,
0,0,34,28,FAMILY THRONE,24,0,0,0
,GARDEN,27,0,35,0

6 DATA ROAD,0,0,36,0,BACK OF GAR
AGE,0,34,0,0,GARAGE-BROTHER IS B
LOCKING

ENTRANCE TO THE VES
T,29,0,0,0,WONDERFUL COMPOST HEA
P,31,0,42,0,ROAD,32,37,0,0

7 DATA GARDEN,0,38,0,36,MORE GAR
DEN,0,39,0,37,GARDEN,0,40,0,38,G
ARDEN,0,41,0,39,OUTSIDE SHED,0,4
2,43,40,BOTTOM CORNER OF HOUSE B
LOCK,35,0,0,41,INSIDE SHED,41,0,
0,0

15 DATA A BUSH,BUSH,THERE IS A H
OLE UNDERNEATH,1,A HOLE,HOLE,1
T IS DARK AND DEEP!1,1,A ROSE
,ROSE,IT STINKS TO HIGH HEAVEN!1,
*,6,A WASHING MACHINE,MACHINE,IT
DOESN'T WORK,8,A SWIMMING POO
L,POOL,THERE ISN'T ANY WATER IN
IT!1,9

16 DATA PACKET OF BISCUITS,BISCU
ITS,THEY ARE 17 YEARS AND 2 MONT
HS OLD!1,*,12,A SHAMPOO BOTTLE,
BOTTLE,IT'S FULL OF SHAMPOO(FIGU
RES!1,*,13,SETTEE,SETTEE,YOU SEE

NOTHING SPECIAL EXCEPT AFEW HOL
ES,16,A BED,BED,IT IS RATHER S
CRUFFY AND ABOUT TO BREA

17 DATA=,18,A DESK,DESK,THERE IS
A KEY ON TOP,19,A KEY,KEY,YOU
SEE NOTHING SPECIAL,*,19,A HAL
F EATEN SANDWICH,SANDWICH,IT LOO
KS AND SMELLS REVOLTING,*,20,A T
V SET,TV,IT'S BLOWN A FUSE SO DO
N'T TRY TO TURN IT ON!1,23,A B
RUSH,BRUSH

18 DATA IT'S SHAPED LIKE SUPERDA
G (THEHERO),*,26,LETTUCE,LETTU
CE,THERE'S WORMS ALL OVER IT!1,*,
27,A BOX,BOX,THERE ARE GOGGLES I
NSIDE!1,*,28,GOGGLES,GOGGLES,MADE
IN HONG KONG IS WRITTEN ON THE
BACK,*,28

19 DATA TOILET PAPER,PAPER,IT'S
DEFINITELY NOT SORBENT(IT'S AS HA
RD AS A ROCK!1,*,30,A PIT,PIT,TH
ERE ARE BOOTS INSIDE,31,BOOTS,
BOOTS,THEY HAVE A FUNNY NOZZLE A
T THE BOTTOM!1,*,31

20 DATA A ROAD SIGN,SIGN,THERE I
S GRAFFITI ALL OVER IT,32,GRAF
FITI,GRAFFITI,IT IS VERY OBSCENE
,32,A CAPE,CAPE,IT LOOKS WIER
D,*,33,COSTUME,COSTUME,IT LOOKS
LIKE A TIGHT PAIR OF PJ'S,*,3
3

21 DATA BROTHER,BROIHER,HE IS PI
CKING HIS NOSE,34,SMELLY SHOE,
SHOE,IT LOOKS TASTY(WIERDO),*,35
,WHEELBARROW,WHEELBARROW,3 WHEEL
S MISSING(!?!1,43

29 DATAN,E,S,W,GET,LOOK,INVENTOR
Y,1,QUIT,DROP,GIVE,SAY,SHOW,EAT,
SMELL,TRANSFORM,OPEN,UNLOCK,SWIM
,JUMP,EXAMINE,FLUSH,DRINK

30 CLEAR500

34 DINK\$(43),D(43,4),LO\$(27),OB\$(
(27),O\$(27),G\$(27),O(27),V\$(24)
35 FOR T=1TO43:READ L\$(T):FORI=1

TO4:READ D(T,I):NEXT I,T
36 FORI=1TO27:READ LO\$(T),OB\$(T)
,O\$(T),G\$(T),O(T):NEXT

37 FORI=1TO23:READ V\$(T):NEXT
40 CLS:PRINT@43,"superdag 1"

41 PRINT:PRINT" AS SAM TRUMPY,
ALIAS SUPERDAG,YOU MUST REPORT T
O HQ AS THE HERO,SUPERDAG.SCA
TTERED AROUND THE HOUSE ARE PIE
CES OF YOUR EQUIPMENT-GOGGLES
,BOOTS,CAPE ANDCOSTUME.ONCE YOU
HAVE FOUND THESE,YOU MUST FI
ND A PLACE TO TRANSFORM"
42 PRINT" WHERE NO-ONE WILL

Editors Note: Over the past few months we have had a few programs that were unprintable due to their length. But because we have changed our policy regarding printing large programs in magazines, we have decided to re-print those few programs which never made it.

These programs will be reproduced, text and all in this month's magazine & tape/disk.

AS SAM TRUMPY, alias Superdag, you must report to HQ as the hero, Superdag. Scattered around the house are pieces of your equipment; goggles, boots, cape and costume.

Once you have found these, you must find a place to transform into -- tada! Superdag!

But the problem is no-one must see you transform.

Good luck, Superdag.

Some routines were taken from "Sword Quest" by Andrew Hart.


```

SEE YOU. THEN, YOU HAVE TO FIND
THE SECRET ENTRANCE AND REPORT
FOR DUTY. GOOD LUCK,
    superdag":EXEC44539
43 PRINT:PRINT"HINTS:YOU CAN'T T
RANSFORM IN SMALL CLOSETS AND
SHAMPOO IN THE WATER SYSTEM IS A
DISASTER!!----BE PREPARED FOR T
HE NEXT    superdag ADVENTUR
E!"
44 PRINT:PRINT"PRESS ANY KEY":EX
EC44539
80 L=18:D(26,4)=25:D(19,1)=14
81 CLS:PRINT"LOCATION: ":PRINTL$
(L):PRINT
82 PRINT"EXITS: ";
83 FOR T=1TO4:IF D(L,T)>0AND D(L
,T)<44THEN PRINTLEFT$(V$(T),1);"
,";
84 NEXT:PRINT:PRINT"YOU SEE: ":F
ORT=1TO27:IF O(T)=L THENPRINTLO$
(T)
85 NEXT
90 PRINT"WHAT DO YOU WANT TO DO
NOW ":INPUT"";W$:IFW$=""THEN90
91 FORT=1TO LEN(W$)
92 W1$="":W2$="":WF=0:W=0
93 FOR T=1TO LEN(W$):IF W>0THEN9
5
94 IF MID$(W$,T,1)="-" THEN W=T
95 NEXT
96 IF W=0THEN W1$=W$
97 IF W>0THEN W1$=LEFT$(W$,W-1):
W2$=MID$(W$,W+1)
98 FORT=1TO8:IF WF>0THEN 102
99 IF W1$=W$(T)OR W1$=LEFT$(W$(T
),1)THEN WF=T
102 NEXT:IF WF>0THEN 107
103 FOR T=9TO24:IF WF>0THEN 106
104 IF W1$=W$(T)THEN WF=T
106 NEXT
107 IF WF=0THENPRINT"PLEASE REPH
RASE THAT ":PRINT:GOTO90
108 ON WF GOSUB 110,110,110,110,
115,126,145,145,148,149,165,169,
170,173,178,183,186,187,188,190,
126,205,207
109 GOTO90
110 IF D(L,WF)=0THENPRINT"YOU CA
N'T GO THAT WAY":PRINT:RETURN
112 L=D(L,WF):GOTO81
115 GOSUB121:IF WO=0THEN 116ELSE
117
116 PRINT"GET WHAT?":PRINT:RETU
RN
117 IF O(WO)<1 OR O(WO)<>L THEN1
16
118 IF L=12 AND W2$="BISCUITS"TH
EN PRINT"YOUR MUM HIT'S YOU OVER
THE HEADFOR NICKING THE BISCUIT
S.YOU AREGROUNDED!YOU HAVE FAILE
D,SUPER DAG!!":ENDELSE119
119 IF G$(WO)=""THENPRINT"YOU C
AN'T GET THAT":PRINT:RETURN
120 O(WO)=-45:PRINT"YOU HAVE IT.
":PRINT:RETURN
121 WO=0:FORT=1TO27:IF WO>0 THEN
124
122 IFW2$=OB$(T)OR W2$=LEFT$(OB$
(T),3)THEN WO=T
124 NEXT
125 RETURN

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```

126 IF W2$=""THEN81
127 GOSUB121:IF WO=0THEN131
128 IF O(WO)<1AND O(WO)>-45OR O(
WO)<>L THEN131
129 W$=O$(WO):GOSUB132
130 PRINT:RETURN
131 PRINT"LOOK AT WHAT?":PRINT:G
OTO90
132 IF L=19 AND W2$="DESK" THEN
O(11)=19
133 IF L=28AND W2$="BOX"THEN O(1
7)=28
134 IF L=32AND W2$="SIGN"THEN O(
22)=32
135 IF L=31AND W2$="PIT"THEN O(2
0)=31
136 IF L=1AND W2$="BUSH"THEN O(2
)=1
140 PRINTW$:FORT=1TO650:NEXT:GO
TO81
145 CLS:PRINT"INVENTORY-YOU HAVE
:"
146 FORT=1TO27:IF O(T)=-45THENPR
INTLO$(T)
147 NEXT:RETURN
148 PRINT:PRINT"CHICKEN!!YOU HAV
E FAILED,SUPER JERK!!":END
149 GOSUB121:IFWO=0THEN150ELSE15
1
150 PRINT"DROP WHAT?":PRINT:RETU
RN
151 IFL=26AND W2$="BOTTLE"THEN15
5
152 IFL=13AND W2$="BOTTLE"THEN15
5
153 IFL=30ANDW2$="BOTTLE"THEN155
154 GOTO161
155 IFO(7)<>-45THEN160ELSE PRINT
"THE SHAMPOO IS IN THE WATER
SYSTEM:THERE ARE BUBBLES EVERY
WHERE!YOU HAVE FAILED,SUPERDAG!
!":END
160 IF O(WO)>-45THENPRINT"YOU HA
VEN'T GOT THAT":PRINT:RETURN
161 O(WO)=L:PRINT"OKAY":PRINT:RE
TURN
165 GOSUB121:IFWO=0THENPRINT"GIV
E WHAT?":PRINT:RETURN
166 IF O(WO)<>-45THENPRINT"YOU H
AVEN'T GOT THAT":PRINT:RETURN
167 IFL<34OR O(26)=-34THENPRINT
"THERE IS NO-ONE HERE TO GIVE IT
TOO":PRINT:RETURN
168 IF W2$="SANDWICH"THENPRINT"Y
OU BROTHER EATS THE SANDWICH AND
MOVES":O(25)=-34:D(34,4)=33:L$(
34)="GARAGE":FORT=1TO650:NEXT:GO
TO8169 PRINT"OKAY.":W2$:PRINT:R
ETURN
170 GOSUB121:IF WO=0THENPRINT"SH
OW WHAT?":PRINT:RETURN
171 IF L<34OR O(26)=-34THENPRIN
T"THERE IS NO-ONE HERE TO SHOW I
T TO":PRINT:RETURN
172 PRINT"HE IS STILL THERE.NO E
FFECT":PRINT:RETURN
173 GOSUB121:IF WO=0THENPRINT"EA
T WHAT?":PRINT:RETURN
174 IF L=12AND W2$="BISCUITS"THE
N PRINT"COUGH!COUGH!YOU HAVE CRU
MBS STUCK IN YOUR THROAT!YOU ARE
CHOKING TO DEATH.GOODBYE,SUPERD

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AG!!":END
175 IF W2$="SHOE"AND L=35 OR O(
27)=-45 THEN PRINT"BURP!BELCH! B
IT TOUGH!":O(27)=-35:PRINT:RETU
RN
176 IF W2$="SANDWICH"AND L=20 T
HENPRINT"YUCK!WHAT A WASTE OF GR
OOTY FOOD":O(12)=-20:PRINT:RETU
RN
177 PRINT"DON'T BOTHER-PROBABLY
TOUGH ANYWAY":PRINT:RETURN
178 GOSUB121:IF WO=0THENPRINT"SM
ELL WHAT?":PRINT:RETURN
179 IF W2$="SHOE"AND L=35OR O(27
)=-45THENPRINT"REMARKABLE RESEM
BLANCE TO 23 YR.OLD GORGONZOLA!.
YUM!":PRINT:RETURN
180 IF W2$="COMPOST"AND L=35THEN
PRINT"EEEEEE-VOLTING":PRINT:RE
TURN
181 IF W2$="TOILET"AND L=30THENP
RINT"NO COMMENT":PRINT:RETURN
182 EX$=W2$+"-ISH":PRINT"USUAL "
;EX$:SMELL":PRINT:RETURN
183 IF O(17)=-45AND O(21)=-45AND
O(24)=-45AND O(25)=-45THEN185
184 PRINT"YOU HAVEN'T GOT EVERYT
HING YET!?:RETURN
185 IF L<33THENPRINT"NOT HERE!S
OMEONE MIGHT SEE YOU!":PRINT:RE
TURN ELSEPRINT"wham!blam!YOU ARE
NOW SUPERDAG!!":SD=-1:PRINT:RETU
RN
186 PRINT"THERE'S NOTHING TO OPE
N":PRINT:RETURN
187 PRINT"NOTHING IS LOCKED HERE
":PRINT:RETURN
188 IF L=9THENPRINT"THERE IS NO
WATER IN THE POOL!!YOU HAVE BRO
KEN YOUR CRANIUM (BRAIN-BONE
TO YOU LESS INFORMEDSUPERDAGS!!
":ENDELSE189
189 PRINT"ARE YOU A LOONY?YOU CA
N'T SWIM HERE!":PRINT:RETURN
190 IF L=1 AND W2$="HOLE"AND SD=
-1THEN200
191 IF L=1AND W2$="HOLE"THENFRIN
T"THE HOLE IS TOO DEEP!YOU ARE S
TUCK IN THE BOTTOM FOR ETERNITY(
TWIT)":END
192 PRINT"HAVING FUN???:PRINT:R
ETURN
200 PRINT"congratulations,SUPER
DAG!YOU REACHED HQ AND ARE ALR
EADY SORTING OUT VILLAINS!V
ATCH FOR THE NEXT SUPER DAG ADV
ENTURE!!":END
205 IF L<30THENPRINT"THERE IS N
OTHING TO FLUSH":PRINT:RETURN
206 PRINT"GLUG GLUG SWISHING NOI
SES":PRINT:RETURN
207 IF W2$="SHAMPOO"OR W2$="BOTT
LE"AND O(7)=-45OR L=13THENPRINT
"YUCK!BUBBLES ARE COMING OUT OF
YOUR MOUTH!THEY ARE TAKING YOU
AWAY AS A RABIES CASE!!":END
208 IF W2$=""THENPRINT"THERE'S N
OTHING HERE TO DRINK":PRINT:RETU
RN
209 PRINT"YOU CAN'T DRINK THAT":
PRINT:RETURN

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VAGG COCO3 COLLECTION

by Johanna Vagg

JOHANNA VAGG HAS done it again. Here she is, with ten MORE programs for everyone to sink their teeth into.

These ten programs are comprised of the following:

* Graphic Goodies: these are in the majority of programs and their subjects are things like "A CoCo 3 Entrance", "Flashing Shapes", "Random Boxes" and "Random Line", "Arrow is Cool", "Kanga' Weights" and a "Musical Kangaroo".

* One Smurf program that can be dumped out onto a printer.

* Two demo programs showing the CoCo 3's ability to manipulate lower case in the 32 - width screen.

Have fun with them and may you learn something.

LISTING ONE: '3ENTER'

```
0 GOTO10
3 SAVE"175:3":END'T
10 '***ENTER COCO3 BY JOHANNA VAGG
11 DECEMBER 1986
15 PALETTERGB' IN CASE PALETTE CHANGED
16 IN PREVIOUS PROGRAM
17 REM DRAW INVISIBLY
```

```
20 FORP=0TO4:PALETTEP,0:NEXT
30 ON BRK GOTO270
40 POKE65497,0'SPEED UP HDRAWING
50 GOSUB280
60 '***DRAW CURTAIN
70 FORX=10TO320 STEP20
80 FORY=0 TO 23 STEP6
90 HCIRCLE(X,Y),10,1,.9,0,.5
100 HCIRCLE(X,Y+1),10,1,.9,0,.5
110 '***PRINT MESSAGE
120 HCOLOR5:HPRINT(4,8),"Enter C
130 COCO3... applause..."
130 '***DRAW FOOTLIGHTS
140 HCIRCLE(X,190),10,3,.25
150 HPAINT(X,190),3,3
160 NEXTY,X
170 PALETTE5,0
180 PALETTE4,63
190 PALETTE3,62
200 POKE65496,0'SLOW DOWN
210 '***CYCLE THROUGH COLORS
220 FORC2=2TO63
230 PALETTE1,C2
250 FORX=1TO400:NEXT:NEXT
260 GOTO220'CYCLE AGAIN
270 POKE65496,0:PALETTERGB:END
280 HSCREEN2'DRAW PUTER
290 HCLS0
300 HCOLOR3
310 HDRAW"BM82,164M+156,0":HCIRCL
320 E(82,152),12,3,1,.25,.5:HCIRCLE
330 (238,152),12,3,1,0,.25:HCIRCLE(8
340 2,152),12,3,1,6,.5,.75:HCIRCLE(2
350 38,152),12,3,1,6,.75,.0
360 HDRAW"BM82,135M+20,-12BM238,
370 135M-20,-12M-115,0BM86,156M+148,
```

```
0":HCIRCLE(86,152),4,3,1,.25,.5:
HCIRCLE(234,152),4,3,1,.0,.25
330 HLINE(114,148)-(206,148),PSE
T:HLIN-(202,142),PSET:HLIN-(11
8,142),PSET:HLIN-(114,148),PSET
340 HLINE(114,125)-(206,125),PSE
T:HLIN-(226,140),PSET:HLIN-(94
,140),PSET:HLIN-(114,125),PSET
350 HPAINT(110,129),4,3
360 HPAINT(110,149),1,3
370 HPAINT(135,145),4,3
380 HCOLOR12:HPRINT(17,16),"COCO
3"
390 RETURN
```

LISTING TWO: '3SHAPES'

```
0 'SHAPES BY JOHANNA VAGG DECEMB
1 ER 1986
1 GOTO10
3 SAVE"175A:3":END'T
10 ON BRK GOTO1100 'LEAVE THIS O
11 UT TO SEE WHITE PRINTING ON
12 THE LO-RES SCREEN OR BL
13 ACK ON WHITE IN WIDTH40 ON BR
14 EAK
20 POKE65497,0 'HIGH SPEED POKE
30 HSCREEN2 '320*192 PIXELS
40 HCLS11 'BUFF SCREEN
50 HCOLOR12 'HDRAW IN BLACK
55 PALETTE12,63 'BUT DON'T SHOW
56 IT
60 HCIRCLE(40,35),30
70 HPAINT(40,35),1,12
80 A$="U22R22D22L22"
```

```

85 'TRY DIFFERENT SCALE VALUES. SOME WILL GIVE INTERESTING EFFECTS (6 WILL ONLY MAKE SHAPES SMALLER; TRY 4 OR 16
90 HDRAW"BM100,60S8"+A$
100 HPAINT(10,50),2,12
110 B$="E15F15G15H15"
120 HDRAW"BM160,35"+B$
130 HPAINT(180,50),3,12
140 C$="E10R0F10D10G10L10H10V10"
150 HDRAW"BM240,27"+C$
160 HPAINT(250,30),5,12
170 HCIRCLE(270,150),30
180 HPAINT(270,150),6,12
190 HDRAW"BM14,140"+C$
200 HPAINT(20,145),7,12
210 HDRAW"BM92,150"+B$
220 HPAINT(120,160),8,12
230 HDRAW"BM170,174"+A$
240 HPAINT(180,170),0,12
250 POKE65496,0:'CANCEL HI-SPEED
260 'SET THE PALETTES 0 TO 12 TO BUFF
1000 FORP=0TO12:PALETTEP,63:NEXT
1010 PA=RND(10)
1020 PC=RND(62)
1030 C=RND(10)
1035 'SET A PALETTE FROM 0 TO 10 TO A RANDOM COLOR
1040 PALETTEPA,PC
1050 IFC>5 THEN SOUNDNRD(255),1
1060 FORT=1TO110:NEXT
1065 'RETURN THE PALETTE TO BUFF
1070 PALETTEPA,63
1090 GOTO1010
1100 POKE65496,0:PALETTERGB:END

```

LISTING THREE: '3SMURF'

```

0 GOTO10
3 SAVE"175B:3":END'T
9 'SMURF LETTERHEAD BY JOHANNA VAGG
9 BELAH STREET FORBES (DECEMBER 86)
10 'CAN BE DONE FROM PMODE4 TOO WITH MINOR CHANGES.PRINTOUT THE SAME, BUT GRAHAM WANTED COCO3 PROGS!
15 CLEAR1000
17 ON BRK GOTO800
20 HSCREEN3' TWO COLOR SCREEN
25 PALETTE0,0:PALETTE1,63'BLACK& WHITE
30 HCLS1
40 P=393218:I=0
50 FORT=1 TO34
60 FOR L=X TO X+4
70 READA
80 LPOKEP+L,A:NEXT'LPOKE THE PIC
90 P=P+76:X=X+4
100 NEXTT
110 DATA 255, 255, 240, 1, 255
120 DATA 255, 255, 15, 254, 127
130 DATA 255, 252, 127, 255, 63
140 DATA 255, 241, 255, 255, 159
150 DATA 255, 231, 255, 255, 159
160 DATA 255, 159, 255, 255, 191
170 DATA 255, 63, 255, 254, 127
180 DATA 254, 127, 255, 248, 255
190 DATA 253, 255, 240, 3, 255

```

```

200 DATA 251, 255, 7, 191, 255
210 DATA 251, 255, 255, 159, 255
220 DATA 247, 255, 248, 0, 255
230 DATA 247, 255, 255, 254, 63
240 DATA 239, 255, 255, 255, 159
250 DATA 239, 255, 255, 255, 159
260 DATA 239, 255, 240, 191, 191
270 DATA 223, 255, 192, 31, 127
280 DATA 223, 255, 143, 64, 239
290 DATA 207, 254, 62, 4, 19
300 DATA 239, 252, 126, 130, 123
310 DATA 239, 253, 254, 0, 253
320 DATA 231, 249, 255, 3, 251
330 DATA 247, 243, 255, 135, 251
340 DATA 243, 7, 255, 223, 247
350 DATA 248, 63, 255, 255, 199
360 DATA 225, 255, 255, 246, 15
370 DATA 239, 159, 255, 240, 159
380 DATA 204, 31, 241, 255, 63
390 DATA 207, 127, 224, 254, 127
400 DATA 231, 31, 243, 249, 255
410 DATA 243, 220, 255, 199, 255
420 DATA 249, 225, 255, 31, 255
430 DATA 252, 14, 16, 31, 255
440 DATA 255, 255, 135, 129, 255
445 HCOLOR0
450 HPRINT(5,8),"ANY KEY TO PRINT"
460 'ANY KEY TO PRINT
470 EXEC44539
480 DIM PR$(64)
490 'ELONGATE NOT REQUIRED BY MOST TANDY PRINTERS. LEAVE IN FOR DMP110.
500 PRINT#-2,CHR$(27)CHR$(14)
510 GN$=CHR$(18)' GRAPHICS ON
520 FORY1=0 TO 34 STEP7
530 FORX1=0 TO 63
540 FORY2=0 TO 6
550 IF HPOINT(X1,Y1+Y2)=0 THEN N
B=NB+INT(2*Y2)
560 NEXT Y2
570 PR$(Y1)=PR$(Y1)+CHR$(NB+128):NB=0
580 NEXT X1:PRINT#-2,GN$;
590 FORL=1TO7:PRINT#-2,PR$(Y1);:NEXT
600 PRINT#-2:NEXT Y1
610 PRINT#-2,CHR$(30)CHR$(27)CHR$(15)'GRAPHICS OFF, ELONGATE OFF
800 PALETTERGB:END

```

LISTING FOUR: '3LINES'

```

0 GOTO10
3 SAVE"175C:3":END'T
10 REM COCO3 GRAPHICS BY JOHANNA
20 POKE65497,0
30 ON BRK GOTO900
40 WIDTH40
50 HSCREEN4:HCLS1:HCOLOR2
60 'MATHEMATICS BELONG TO OTHERS
70 'MODIFIED, AND MIRROR IMAGE ADDED BY JOHANNA VAGG
80 P=RND(10)/10:T=RND(360)/57.3:

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```

R=RND(8)/4:FORN=1TO60:V=250+47*
SIN(N/9.55):T=T+R/9.55:W=V-80*(1-
P)*COS(T):X=96-80*(1-P)*SIN(T):Y
=V+80*P*COS(T):Z=96-80*SIN(T):HL
INE(W,X)-(Y,Z),PSET:HLIN(640-W,
X)-(640-Y,Z),PSET:NEXT:FORI=1TO2
000:NEXT:GOTO50
90 PALETTERGB:PALETTE0,0:PALETTE
14,48:CLS0:CLS1:ATTR6,0:POKE6549
6,0:LIST

```

LISTING FIVE: '3BOXES'

```

0 GOTO10
3 SAVE"175D:3":END'T
10 REM BOXES
20 REM BY JOHANNA VAGG FOR COCO3
30 ON BRK GOTO180
40 POKE65497,0
50 HSCREEN2
55 'SET PALETTES
60 PALETTE1,22:PALETTE0,32:PALET
TE3,43:PALETTE10,32:PALETTE8,8
70 HCLS12
80 S=RND(10)
90 Y=0
100 FOR X=0 TO 191 STEP S
110 HCOLOR X/16
120 HLINE(X,Y)-(319-X,191-Y),PSE
T,B
130 Y=Y+S:NEXT
140 FORT=1TO900:NEXT
150 PALETTE RGB'CHANGE COLORS
160 FORT=1 TO 900:NEXT
170 GOTO60
180 PALETTERGB:POKE65496,0:END

```

LISTING SIX: '3WIDTH32'

```

0 GOTO10
3 SAVE"175E:3":END'T
5 'WIDTH32 DEMO BY JOHANNA
10 WIDTH32:CLS
20 ON BRK GOTO120
30 X=RND(62):PALETTE13,X
35 T=RND(10):IF T>5 THEN PALETTE
12,63 ELSE PALETTE12,0
40 POKE359,126:POKE65314,4
50 PRINT@102,"Coco 3 Coco 3 Coco
3"
55 PRINT@166,"lowercase in width
32??"
57 PRINT@325,"these are all widt
h32!!!"
60 FORT=1TO600:NEXT
70 POKE359,126:POKE65314,21
80 FORT=1TO600:NEXT
90 POKE359,57:POKE65314,52
100 FORT=1TO600:NEXT
110 GOTO20
120 CLS:PRINT@230,"THIS COLOR WA
S"X:POKE359,126:PALETTE12,0

```


LISTING SEVEN: '3SCREENS'

```

0 GOTO10
3 SAVE"175F:3":END'T;
10 "JOHANNA VAGG 9 BELAH STREET
FORBES
15 POKE65497,0
20 WIDTH32
30 '3SCREENS
40 ON BRK GOTO330
50 PALETTE13,32:PALETTE12,48
60 CLS:PRINT@10,"JO'S COCO3"
70 PRINT:PRINT" CHANGE PALETTE
13 FOR THE BACKGR
OUND"
80 PRINT" AND PALETTE 12 FOR TH
E TEXT"
90 POKE44014,74:POKE44015,86
100 POKE41381,25
110 :PRINT:PRINT" POKES TO 4401
4 AND 44015 WILL CHANGE
THE PROMPT"
120 PRINT:PRINT" A POKE TO 4138
1 WILL CHANGE THE C
URSOR"
130 PRINT" TYPE CONT TO CONTI
NUE"
140 STOP
150 CLS:PRINT@10,"JO'S COCO3"
160 PRINT:PRINT" CHANGE PALETTE
S 0-7 FOR DIFFERENT PMOD
E1 AND 3 COLORS"
170 P=3:S=0:PRINT:PRINT" FOR EX
AMPLE":PRINT@230,"any key":EXEC4
4539:GOSUB340
180 PRINT:PRINT"THAT WAS PMODE3:
SCREEN1,0"
190 P=3:S=1:EXEC44539:GOSUB340
200 PRINT"THAT WAS PMODE3:SCREEN
1,1"
210 PRINT:PRINT"YOU CAN CHOOSE A
NY 4 COLORS"
215 EXEC44539
220 CLS:P=4:S=0:PRINT@10,"JO'S C
OCO3":PRINT:PRINT"PALETTES FOR P
MODE4 ARE 8-11":PRINT@230,"any k
ey"
230 EXEC44539:GOSUB340
240 PRINT:PRINT"THAT WAS PMODE4:
SCREEN1,0"
250 P=4:S=1:EXEC44539:GOSUB340
260 PRINT:PRINT"THAT WAS PMODE4:
SCREEN1,1":PRINT@416,"YOU CAN CH
OOSE ANY 2 COLORS":EXEC44539
270 PALETTE0,0:PALETTE14,48
280 ATTR6,0
290 WIDTH40:LOCATE7,10:PRINT"How
about these colors?":LOCATE14,2
2:PRINT"any key"
300 EXEC44539:PA=RND(48):PALETTE
0,PA:PALETTE14,PA+15:L=L+1:IF L>
10 THEN 310 ELSE 300
310 CLS:PALETTE0,32:PALETTE14,62
:LOCATE2,10:PRINT"and we haven't
even looked at the new
hi-res screens yet!"
320 GOTO320
330 POKE65496,0:PALETTERGB:END
340 PALETTE0,63:PALETTE1,32:PALE
TTE2,25:PALETTE3,52:PALETTE4,22:
PALETTE5,6:PALETTE6,8:PALETTE7,4

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```

5:PALETTE8,32:PALETTE9,63:PALETT
E10,0:PALETTE11,48:PALETTES FOR
PMODE3 AND 4
350 PMODEP:SCREEN1,S:PCLS1
360 COLOR2:LINE(0,0)-(255,191),P
SET
365 CIRCLE(128,96),80
370 PAINT(130,94),0,2:PAINT(120,
96),3,2:PAINT(0,2),2,2
380 EXEC44539:RETURN

```

LISTING EIGHT: '3ARROW'

```

0 GOTO5
3 SAVE"175G:3":END'T
5 REM ARROW BOOK CLUB LOGO HDRAW
N WITH THE HELP OF GRAPH PAPE
R BY RICHARD VAGG 9 BELAH S
TREET FORBES 2871 CAN BE
DRAWN ON THE PMODE3 OR 4 SCREEN
WITH MINOR CHANGES
6 ON BRK GOTO2010
7 POKE65497,0
8 T=108
10 HSCREEN2
20 HCOLOR12,5
25 HCLS5
30 FORZ=1TO T
35 F=40:CHANGE THIS TO MOVE HIM
OVER
40 READ A,B,C,D
50 HLINE(A+F,B)-(C+F,D),PSET
60 NEXT
70 DATA106,30,110,40
80 DATA 110,40,118,50
90 DATA 118,50,124,60
100 DATA 124,60,127,71
110 DATA 126,73,146,65
120 DATA 146,65,151,56
130 DATA 151,56,150,53
140 DATA 150,53,146,51
150 DATA 146,51,148,50
160 DATA 148,50,153,52
170 DATA 153,52,154,49
180 DATA 154,49,153,43
190 DATA 153,43,154,43
200 DATA 154,43,157,48
210 DATA 156,48,160,48
220 DATA 159,48,160,43
230 DATA 160,43,162,43
240 DATA 162,43,162,49
250 DATA 161,49,164,51
260 DATA 163,51,165,47
270 DATA 165,47,167,48
280 DATA 167,48,157,59
290 DATA 156,57,159,58
300 DATA 157,59,154,66
310 DATA 154,66,151,69
320 DATA 151,69,127,82
330 DATA 133,79,136,90
340 DATA 136,90,134,100
350 DATA 134,100,133,106
360 DATA 133,106,128,112
370 DATA 128,112,120,116
380 DATA 120,116,109,116
390 DATA 111,113,109,116
400 DATA 109,116,106,126
410 DATA 106,126,109,124
420 DATA 109,124,112,124

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425 DATA 112,124,96,140,
430 DATA 96,140,92,141
440 DATA 92,141,90,140
450 DATA 90,140,100,125
460 DATA 100,125,104,108
470 DATA 104,108,108,108
480 DATA 104,108,110,106
490 DATA 110,106,112,107
500 DATA 110,106,118,104
510 DATA 102,117,90,120
520 DATA 90,120,80,121
530 DATA 80,121,66,128
540 DATA 68,128,68,130
550 DATA 68,130,71,131
560 DATA 71,131,60,144
570 DATA 60,144,50,148
580 DATA 50,148,60,120
590 DATA 60,120,62,100
600 DATA 62,100,74,100
610 DATA 74,100,76,94
620 DATA 74,100,78,98
630 DATA 78,98,80,90
640 DATA 80,90,76,90
650 DATA 78,90,76,94
660 DATA 76,94,72,94
661 DATA 76,84,74,79
662 DATA 74,79,76,75
663 DATA 71,74,70,80
664 DATA 70,80,62,82
665 DATA 62,82,60,80
666 DATA 72,94,80,90
667 DATA 76,75,71,74
670 DATA 60,90,54,86
680 DATA 54,86,53,80
690 DATA 53,80,56,76
700 DATA 56,76,63,75
710 DATA 80,90,83,89
720 DATA 83,89,82,85
730 DATA 82,85,78,85
740 DATA 82,85,84,84
750 DATA 84,84,82,84
760 DATA 82,84,79,81
770 DATA 79,81,74,82
780 DATA 79,81,81,74
790 DATA 81,74,82,72
800 DATA 82,84,83,72
810 DATA 83,72,65,70
820 DATA 81,74,65,70
830 DATA 65,70,62,82
840 DATA 62,100,58,98
850 DATA 58,98,61,93
860 DATA 73,71,90,46
870 DATA 90,46,100,39
880 DATA 100,39,106,38
890 DATA 100,39,104,36
900 DATA 104,36,107,36
910 DATA 104,36,106,30
920 DATA 95,49,101,46
930 DATA 113,49,106,46
940 HCIRCLE (100+F,53),5
950 HCIRCLE (110+F,53),5
960 HCIRCLE (100+F,53),1
970 HCIRCLE (110+F,53),1
980 DATA 100,58,93,57
990 DATA 100,58,93,59
1000 DATA 110,58,114,57
1010 DATA 110,58,114,59
1020 DATA 84,66,89,63
1030 DATA 85,64,93,70
1040 DATA 93,70,104,74
1050 DATA 104,74,116,70

```

```

1060 DATA 116,70,122,64
1070 DATA 119,63,123,66
1080 DATA 93,70,104,76
1090 DATA 104,76,116,70
1100 DATA 100,78,104,80
1110 DATA 104,80,108,78
1125 HPAINT(0,0),4,12
1130 HCOLORS
1135 HPRINT(10,20),"ARROW IS COO
L!!!"
1140 HPAINT(66+F,74),3,12
1145 HPAINT(68+F,96),3,12
1150 HPAINT(76+F,96),7,12
1152 HPAINT(30+F,80),7,12
1155 POKE65496,0
1160 FORP=11J7:PALETTEP,RND(63):
FORI=1TO500:NEXT: NEXT
1170 GOTO1160
2000 GOTO2000
2010 PALETTERGB: POKE65496,0: END

```

LISTING NINE: '3WEIGHTS'

```

0 GOTO10
3 SAVE"175H:3":END'T
10 '3WEIGHTS
20 'BY RICHARD VAGG(10)
30 'ACTUAL DRAWING CAN BE EASILY
    CHANGED TO PMODE3 OR
4
35 'HDRAWing worked out on graph
    paper
40 POKE65497,0
50 ON BRK GOTO2480
60 T=200
70 HSCREEN2 HCLS4: HCOLOR10
80 PALETTE9,8: PALETTE7,9: PALETTE
    8,10
90 FOR N=1 TO T
100 READ A,B,C,D
110 HLINE(A,B)-(C,D),PSET
120 NEXT
130 DATA 162,36,156,35
140 DATA 156,35,152,30
150 DATA 152,30,148,29
160 DATA 148,29,144,30
170 DATA 144,30,141,34
180 DATA 141,34,144,40
190 DATA 144,40,148,44
200 DATA 148,44,150,60
210 DATA 150,60,148,70
220 DATA 148,70,146,74
230 DATA 146,74,142,76
240 DATA 137,76,130,78
250 DATA 142,76,144,74
260 DATA 144,74,140,73
270 DATA 142,73,137,76
280 DATA 137,76,136,87
290 DATA 142,76,145,85
300 DATA 145,85,157,83
310 DATA 157,83,157,77
320 DATA 157,77,158,76
330 DATA 158,76,161,78
340 DATA 161,78,162,86
350 DATA 162,86,164,89
360 DATA 138,86,136,88
370 DATA 137,87,134,92
380 DATA 134,92,132,91
390 DATA 132,91,132,95
400 DATA 132,91,130,90
410 DATA 130,90,127,93

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420 DATA 127,93,128,97
430 DATA 127,93,100,93
440 DATA 128,97,100,97
450 DATA 100,129,100,56
460 DATA 100,56,96,56
470 DATA 96,56,96,129
480 DATA 96,129,100,129
490 DATA 96,126,92,126
500 DATA 92,126,92,58
510 DATA 92,58,96,58
520 DATA 92,62,92,62
530 DATA 92,120,88,120
540 DATA 88,120,88,64
550 DATA 88,64,92,64
560 DATA 88,112,84,112
570 DATA 84,112,84,72
580 DATA 84,72,88,72
590 DATA 84,82,80,82
600 DATA 80,82,80,102
610 DATA 80,102,84,102
620 DATA 80,93,70,93
630 DATA 70,93,70,97
640 DATA 70,97,80,97
650 DATA 125,93,123,91
660 DATA 123,91,122,93
670 DATA 122,97,124,100
680 DATA 124,100,134,100
690 DATA 134,100,136,97
700 DATA 136,97,139,93
710 DATA 139,93,138,91
720 DATA 138,91,135,92
730 DATA 135,92,135,96
740 DATA 134,100,128,106
750 DATA 128,106,122,108
760 DATA 122,108,118,100
770 DATA 118,100,118,97
780 DATA 118,93,119,92
790 DATA 119,92,121,90
800 DATA 121,90,123,86
810 DATA 123,86,126,85
820 DATA 126,85,128,80
830 DATA 128,80,132,77
840 DATA 162,36,166,32
850 DATA 166,32,170,28
860 DATA 170,28,174,28
870 DATA 177,32,172,40
880 DATA 177,32,172,40
890 DATA 172,40,155,59
900 DATA 155,59,152,74
910 DATA 152,74,157,77
920 DATA 174,28,177,32
930 DATA 161,78,170,77
940 DATA 170,77,175,80
950 DATA 175,80,176,84
960 DATA 176,84,173,85
970 DATA 174,84,176,91
980 DATA 176,91,177,93
990 DATA 176,91,173,91
1000 DATA 173,91,172,93
1010 DATA 172,97,170,99
1020 DATA 170,99,170,97
1030 DATA 170,97,170,93
1040 DATA 170,93,168,90
1050 DATA 168,90,166,96
1060 DATA 166,96,165,88
1070 DATA 165,88,161,91
1080 DATA 161,91,161,96
1090 DATA 161,91,158,89
1100 DATA 156,93,157,97
1110 DATA 139,93,156,93
1120 DATA 136,97,157,97
1130 DATA 158,89,156,93

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1140 DATA 157,97,160,104
1150 DATA 160,104,172,102
1160 DATA 172,102,176,97
1170 DATA 164,89,166,86
1180 DATA 166,86,168,84
1190 DATA 168,84,167,82
1200 DATA 167,82,170,80
1210 DATA 170,97,198,97
1220 DATA 170,93,198,93
1230 DATA 198,56,198,130
1240 DATA 198,130,202,130
1250 DATA 202,56,198,56
1260 DATA 202,130,202,56
1270 DATA 206,60,206,126
1280 DATA 202,60,206,60
1290 DATA 206,126,202,126
1300 DATA 206,66,210,66
1310 DATA 210,66,210,120
1320 DATA 210,120,206,120
1330 DATA 210,74,214,74
1340 DATA 214,74,214,112
1350 DATA 214,112,210,112
1360 DATA 214,84,218,84
1370 DATA 218,102,214,102
1380 DATA 230,97,230,93
1390 DATA 230,93,218,93
1400 DATA 218,102,218,84
1410 DATA 218,97,230,97
1420 DATA 162,104,162,120
1430 DATA 162,120,134,120
1440 DATA 134,120,134,122
1450 DATA 134,122,138,128
1460 DATA 138,128,158,128
1470 DATA 134,122,134,100
1480 DATA 162,122,162,120
1490 DATA 158,128,162,122
1500 DATA 134,122,128,119
1510 DATA 128,119,124,122
1520 DATA 124,122,124,140
1530 DATA 124,140,120,156
1540 DATA 120,156,100,158
1550 DATA 94,164,96,163
1560 DATA 93,160,89,166
1570 DATA 89,166,131,166
1580 DATA 92,166,94,164
1590 DATA 94,164,96,163
1600 DATA 100,158,93,160
1610 DATA 98,166,100,164
1620 DATA 100,164,104,164
1630 DATA 131,166,134,164
1640 DATA 134,164,134,144
1650 DATA 135,141,138,144
1660 DATA 138,144,141,146
1670 DATA 141,146,156,146
1680 DATA 156,146,158,144
1690 DATA 158,144,161,139
1700 DATA 161,139,163,142
1710 DATA 163,142,156,160
1720 DATA 156,160,154,166
1730 DATA 154,166,153,170
1740 DATA 153,170,163,170
1750 DATA 134,144,135,141
1760 DATA 156,170,158,168
1770 DATA 158,168,157,167
1780 DATA 160,170,161,168
1790 DATA 161,168,159,166
1800 DATA 162,170,164,164
1810 DATA 164,164,160,160
1820 DATA 160,160,154,166
1830 DATA 164,164,166,160
1840 DATA 166,160,172,140

```

continued on page 53

SWAMP ATTACK



by David Hill

This program was written using RND to pick a certain swamp creature. Then you are asked how many of these are in the swamp. You have five guesses but there can be up to ten swamp creatures. Type in the program and try your luck.

The Listing S.ATTACK:

```

1 REM *****
2 REM ** SWAMP ATTACK **
3 REM ** COMPOSED BY- **
4 REM ** DAVID J. HILL **
5 REM ** NOVEMBER 1986 **
6 REM *****
19 S=0
20 N=RND(6)

22 IFN=1 THEN$="CROCODILE":GOTO 45
23 IFN=2 THEN$="PIRANHA":GOTO45
24 IFN=3 THEN$="SHARKS":GOTO45
25 IFN=4 THEN$="ALLIGATORS":GOT
045
26 IFN=5 THEN$="STING RAYS":GOT
045
27 IFN=6 THEN$="SEA SNAKES":GOT
045
45 CLS:FORR=0T063:SET(R,6):NEX
TR
46 FORR=0T063:SET(R,0,6):NEXTR
47 GOSUB48:GOTO49
48 PRINT32,"HOW MANY ",S$:PRIN
T52,"IN THE SWAMP":RETURN
49 FORR=0T063:SET(R,30,6):NEXTR:
FORR=0T063:SET(R,26,6):NEXTR:GOS
UB248
60 A=RND(10)
70 FORN=1 TO 5
71 GOSUB48
80 INPUT R
90 IF R=A THEN N=5:GOTO170

100 PRINT266,"WRONG":SOUND100,
10:PRINT266
110 NEXTN
120 PRINT224,"!!!! SNAP !!!!"
130 PRINT"YOU HAVE BEEN EATEN UP
!!"
140 FORR=0T02000:NEXTR:GOTO400
170 N=RND(10000)
180 PRINT224,"RIGHT !! NOW ADD
LE AWAY FAST !!":S=S+N:GOSUB248:
FORR=0T02000:NEXTR:GOTO20
240 PRINT457,"SCORE":S:RETURN
400 CLS0
401 PRINT298,"YOU SCORED":S
402 INPUT"ANOTHER GO":A$
404 IF A$="Y" THEN RUN
405 CLS0
406 FORI=16384 TO 16895:POKEI,32
:NEXTI:PRINT136,"score-":S:PRI
NT268,"the end":GOTO406
  
```

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```

8500 REM DRAW THE LETTERS *****
8510 DRAW"BX"+STR$(X)+", "+STR$(Y
)+"S=S:C=C:"
8520 FOR K=1 TO LEN(C$)
8530 F1=ASC(MID$(C$,K,1))-63
8540 IF F1=-31 THEN DRAWL$(1) EL
SE DRAW L$(F1)
8550 NEXT K
8560 RETURN
8600 REM DRAW THE NUMBERS *****
8610 DRAW"BX"+STR$(X)+", "+STR$(Y
)+"S=S:C=C:"
8620 FOR K=1 TO LEN(C$)
8630 F1=ASC(MID$(C$,K,1))-48
8640 DRAW N$(F1)
8650 NEXT K
8660 RETURN
9000 REM *****
9010 REM ***** INITIALIZE *****
9020 REM *****
9025 FCLEAR5
9030 DIM N$(10),L$(29),I$(26),TT$
(10):P1$="L255T20004ABCDEF GGFEDC
BA":P2$="L255T10003GGGAAABBBCCCD
DDEEEFFF":V=0:H=0
  
```

```

9035 G=RND(-TIMER):B=135
9036 FOR K=1 TO 10:TT$(K)="" :NEX
TK
9050 DATAD4R3U4L3BR5,BR2ND4BR2,R
3D2L3D2R3BU4BR2,R3D2NL3D2L3BU4BR
5,D2R2NU2ND2RBU2BR2,NR3D2R3D2L3B
U4BR5,NR3D4R3U2L3BU2BR5,R3DG3BE4
BR,D4R3U2NL3U2L3BR5,D2BD2R3U2NL3
U2L3BR5
9060 DATABR4,ND4R3D2NL3D2BU4BR2,
D4R2EHL2EHL2BR5,D4R3BU4L3BR5,D4
R2BU2HL2BR5,D2NR2D2R3BU4L3BR5,NR
3D2NR2D2BE4BR,NR3D4R3U2LBE2BR,D2
ND2R3D2U4BR2,R2LD4LR2BR2BU4,BD3D
R3U4BR2,D4V2RNF2E2BR2
9070 DATAD4R3BU4BR2,ND4F2E2ND4BR
2,ND4F3DU4BR2,D4R3U4L3BR5,ND4R3D
2L3BR5BU2,D4R2NHNFRU4L3BR5,ND4R3
D2L3RF2BR2BU4,NR3D2R3D2L3BR5BU4,
R4L2D4BR3BU4,D4R3U4BR2,D2F2E2U2B
R2,D4E2F2U4BR2,F4LE4BR2,F2ND2E
2BR,R3DG3R3BU4BR
9080 DATABD2R2NR2NU2D2BU4BR2,BD2
R4BU2BR2
9090 FOR K=0 TO 9:READ N$(K):NEX
T
9100 FOR K=1 TO 29:READ L$(K):NE
  
```

```

XT
9110 PMODE1,5:PCLS2:SCREEN1,0
9112 LINE(0,0)-(255,101),PSET,B
9115 C$="KEYBOARD":X=10:Y=20:S=2
4:C=3:GOSUB8500
9120 C$="SKILLS":X=40:Y=70:S=24:
C=1:GOSUB8500
9130 C$="2":X=110:Y=115:C=4:S=40
:GOSUB8600
9140 REM DRAW AND GET ALIEN*****
9150 PMODE3,1:PCLS3
9160 DRAW"BM0,24;S8C4V4R3M+3,-3V
R4DM+3,+3R3D4LU2L2D2L10U2L2D2LBM
+5,-1U2R2D2L2BM+4,0U2R2D2L2"
9170 PAINT(16,12),2,0
9180 GET(0,0)-(40,24),I,G
9185 PMODE1,5
9190 C$="SELECT SPEED":S=8:C=4:
X=35:Y=170:GOSUB8500:C$="1":X=15
8:GOSUB8600:C$="10":X=175:GOSUB8
500:C$="8":X=205:GOSUB8600
9500 IN$=INKEY$:Q=VAL(IN$):IF IN
$="" THEN 9500 ELSE IF Q(1 OR Q)
8 THEN 9500 ELSE 9505
9505 PLAY"T255ABAB"
9510 GOTO30
  
```


THE CoCo3 Vs THE AMIGA

by Walter Zambotti

THIS IS IN RESPONSE to the graphic program competition which is being currently held by you and Tandy (I assume).

I am about two-thirds of the way through writing a hires (320x225) Gauntlet type arcade game. So far the results are sensational. The graphics are just like that which can be found on the Amiga and Atari machines.

But I am afraid that two thirds is about all my nerves can put up with. All I can say is "this machine is by far the most poorly supported and least documented of all machines I have ever programmed."

Let me draw a comparison. When the Amiga was first released there wasn't much software around for it (I can still remember those early days of nervousness for the Commodore Corp.). But behold Commodore, through much insight and wisdom, saw fit to release (at an optional cost) all information pertaining to the operating system calls and functions, the kernel calls and functions, and an extremely detailed description of the functioning and use of the hardware.

I have seen and read these manuals and to say "they are a programmers dream" is a gross understatement. Every last detail about controlling every single hardware feature is contained in these manuals. I just can't understand why so many third party software developers chose to program this machine, just can't understand it!

Meanwhile, lets look at the tight Tandy approach. Six months down the line, still no

information, programming tools or worthwhile software. And now the Amiga is so popular that you can buy one cheaper than the CoCo. Commodore Amiga's results speak for itself. As do Tandy's result speak for themselves.

"OS-9 might as well have

been called UNIX-9"

Having to offer competitions in order to create a software base is not really the answer, is it? But I suppose this is what can be expected from the management side of Tandy - we are all used to it now.

And I'm sorry, I told a lie. There is currently an assembler sold by Tandy that functions on the CoCo III. It resides in the lower 32K of memory and allows you to create programs as large as 16K in your new 512K machine.

And of course there are those great documented ROM & DOS routines which you can call to use the CoCo to its maximum potential. Ha! Except if you want a stand alone relocatable program that can sit anywhere in memory, then you can't use them anymore. Oh well ...

Then there's all that compatible old software from the CoCo I & II that will run on the new machine, like:

* Cyrus

* Audio Spectrum Analyser
* CoCoMax

... which I bought from Tandy and doesn't seem to work. Looks like Tandy couldn't heed their own warning to stay out of those reserved areas in high memory.

And all that great new software that Tandy has released in the last six months, all one program, called "DeskMate", which is really great when you want to be mating desks together, but not really useful to your average programmer.

And yeah, this time seriously, there's OS-9 level II which is the best 8 bit operating system ever written. It might as well have been called UNIX-9. It's so good actually that I can buy a ported version for my Amiga called OS-9 68k or something like that. And all on an entry level machine for \$450.00.

But when I opened my \$450.00 CoCo III box, gasp shock, there was no OS-9. I went crying and sobbing back to my Tandy dealer asking about my copy of OS-9 which they had obviously forgotten to package in my box.

But when I got there they assured me that OS-9 was an optional extra which must be purchased separately:

* OS-9 Operating system:
\$450.00

".. and you'll need a disk drive!"

* 136k disk drive:
\$600.00

".. and you'll want an 80-column display!"

* RGB Colour Monitor:
\$700.00

".. if you've got a modem

you'll need a multipack!"

* One Multipak
\$180.00

".. and today you know you can't do without 512k"

* 512K memory expansion board
\$350.00 fitted

".. and don't forget he initial outlay!"

* a CoCo III
\$450.00

Well so that comes to a grand total of, stagger gasp (hold onto something or you'll fall over, Walter), \$2420.00. Well maybe I didn't need a monitor and maybe I didn't need a multipak and maybe I don't need 512K, so that would only come to \$1190.00. Bang. "Did something just hit the floor?"

Well so much for my \$450.00 entry level machine to OS-9. Now be fair, Walter. If you want that professionalism you have to pay for it. Remember what they say you only get what you pay for. "Yea, but I couldn't see the complimentary Porsche anywhere."

And while I'm on the subject of monitors ...

"Wow, those are real nice colours on the monitor!"

"Tandy Colour Monitor, you know..."

"Hey, what's that, a special graphics character?"

"That's a lower case 'm'"

"And what's that?"

"That's a lower case 'w'"

"Oh. How can ya tell?"

Yes Tandy's 640 resolution monitor is not really very sharp. In fact it is one of the most expensive medium resolution monitors in Australia. I can't say that I noticed any difference between it and my Sony Trinitron with a composite input.

Anyway, back to the story. Where was I? That's right, in the middle of a no information problem. Hey, what's this I'm reading? My guardian angel had been listening again - it's an ad and it says "New Amiga 500:"

* 512K internally expandable to 1Mb

* 68000 processor ' 7.odd MHz

* Three independant co-processors

* Internal 880K disk drive

* 640x400 RGB Colour Monitor

... for how much? \$1590.00. Wow. For \$400.00 more than the bare bones OS-9 entry level machine I can have a real Amiga.

Just the 68000 processor alone is four times faster than a CoCo but with those three extra built-in graphic, sound and I/O co-processors, wow, wow, wow ...

And programming information is available on every bit of hardware I need or want to use. Yeah, but how much? Lets see, Amiga developers kit - \$1000.00 bucks. Well that's still cheaper than the CoCo system I wanted, and I get information, but still that's not a home system price.

But wait - what's this here? I don't need a developers kit. Just buy one of the cheaper assemblers for \$200.00 and buy a hardware reference manual for \$50.00.

But where can I get a hardware reference manual? Probably as scarce as hens teeth. Well down to the local technical bookshop

"Yeah, but I couldn't see

the complimentary

Porsche anywhere."

and lets hope. Fingers crossed, yes there it is ... "Amiga Hardware Reference Manual".

I don't believe it only costs \$50.00 and an inch thick. My hands are trembling, as I open up and read. I can't believe it - that it's not written for electronic geniuses, but real down to earth programmers like you and me.

Oh no, I think I wet my jeans.

La di da, get CoCo III, da di da, put in box, da di dum, and sell. Will have to make a loss though. I mean \$2420.00 for the hardware plus all those extra ROM paks and other software comes to a total of over \$3000.00. I think \$1750.00 is a fair price.

But finally the big day came and with a tear in the corner of one eye and a glint in the corner of the other, it was sold. Whoosh ... down to the local Amiga dealer and one Amiga

500 please with that and that and that, you do have those, don't you? "Why yes, sir!"

Back home and program away... it's so easy, there must be a simpler word than program for it?

So after all that a happy ending. Well not quite, no sooner do I get a good flow of programming idea pouring out onto my Amiga then that blasted phone rings again:

"Hello, Mr Zambotti speaking, can I help you?"

"Mr Zambotti, if you're a man of integrity you would take this computer back."

"Click."

It's that guy I sold the CoCo III to for (<- sorry about that) only \$1750.00, it seems he saw the same ad in the paper as me and now I'm being bounded. What to do? Yes, I know.

And so finally, this is why I am writing to you.

Is there any legal action that I can take against the person who bought my CoCo so that he will not bother me anymore.

Signed:

I didn't really sell my CoCo III (no-one would buy it from me at that price) but is there somewhere I can get a hardware reference manual for the CoCo III which is readable by programmers without degrees in electronics.

I have written some really fantastic games for the Amiga, in only a few weeks, but so far have been unable to port them into the CoCo. And soon I might lose all hope of finding such information.

Apart from the impressive functions of activating and deactivating graphics, with colours, what does the GENE chip have for manipulating graphics?

Sprites or hardware scrolling or built-in drawing routines? No, no and no looks that sort of state of the art (only dreamt about) technology can't be found in a CoCo. Do you realise how much processing is required to move 30K, 32K or 36K of memory around. All that graphics capability and no hardware to support it.

But there is the new verticle offset register which can point your graphics screen anywhere in the 512K range in increments of 8 bytes. Hey great that means the screen can be scrolled vertically as little as 1 pixel,

But it immediately implies that you set aside free memory for the graphics screen to move into. With this method you always need double the amount of memory you would normally require.

And horizontal scrolling can be achieved in the graphics mode by use of the virtual screen mode. This makes the CoCo screen 512K pixels wide with only 320 pixels displayed at any a time. And the scrolling resolution is 2 bytes or 4 pixels.

But the catch is you need to reserve upto 57K to use this and double that figure if you want verticle scrolling as well. That's 114K and that means using these techniques for scrolling smoothly will require a 512K machine immediately. And that drastically limits a software houses' buying market.

No, I don't think those new state of the art games and drawing aids that have been developed for machines like the Amiga or the Atari ST will be seen on the CoCo. Not because extra colours have been added. I can't dream of games like "Arctic Fox" (a full colour three dimensional game with stereo sounds) been ported over to the CoCo. Not unless you like playing with stick figures.

And one final thought I leave with you. Not described in technicians repair manual for the CoCo III are six mysterious latched memory locations. They don't appear in the old or new versions of these manuals (as far as my limited tech. understanding can perceive) and I can't seem to find what they do, although POKEing to them always locks up the keyboard. I leave the mysterious six locations with you and maybe you can tell me?

Mem: FF24, FF27, FF29, FF2B, FF2D, FF2F

Seeing that they lay on addresses maybe we can assume their partnered latch lays on the even byte. But POKEing to the even lower or higher byte of each mystery latch does not free the keyboard again. Only a reset could do that.

Walter Zambotti

Cert. Computer Programmer

Dip. Computer Programmer

VAGG COCO3 COLLECTION

from page 49

```

1850 DATA 172,140,173,128
1860 DATA 173,128,168,122
1870 DATA 168,122,162,122
1880 DATA 162,122,158,128
1890 DATA 158,128,155,133
1900 DATA 134,122,135,133
1910 DATA 158,144,154,160
1920 DATA 154,160,156,159
1930 DATA 166,159,172,158
1940 DATA 172,158,180,160
1950 DATA 180,160,182,162
1960 DATA 182,162,178,165
1970 DATA 178,165,170,166
1980 DATA 170,166,164,164
1990 DATA 154,166,142,164
2000 DATA 142,164,140,160
2010 DATA 140,160,141,146
2020 DATA 151,50,155,46
2030 DATA 155,46,159,49
2040 DATA 159,49,161,45
2050 DATA 161,45,163,49
2060 DATA 157,40,151,37
2070 DATA 157,40,152,43
2080 DATA 157,40,164,39
2090 DATA 157,40,161,43
2100 DATA 156,40,156,42
2110 DATA 156,42,158,42
2120 DATA 158,42,158,40
2130 HPAINT(152,50),1,10
2140 HPAINT(150,100),3,10
2150 HPAINT(150,90),3,10
2160 HPAINT(150,140),1,10
2170 HPAINT(150,150),1,10
2180 HPAINT(130,80),1,10
2190 HPAINT(130,98),1,10
2200 HPAINT(130,102),1,10
2210 HPAINT(150,122),6,10
2220 HPAINT(160,164),1,10
2230 HPAINT(170,163),1,10
2240 HPAINT(172,80),1,10
2250 HPAINT(136,93),1,10
2260 HPAINT(160,97),1,10
2270 HPAINT(174,92),1,10
2280 HPAINT(150,96),6,10
2290 HPAINT(180,96),6,10
2300 HPAINT(220,96),6,10
2310 HPAINT(110,96),6,10
2320 HPAINT(75,96),6,10
2330 HPAINT(98,95),9,10
2340 HPAINT(94,95),5,10
2350 HPAINT(90,95),8,10
2360 HPAINT(86,95),2,10
2370 HPAINT(82,95),7,10
2380 HPAINT(200,95),9,10
2390 HPAINT(204,95),5,10
2400 HPAINT(208,95),8,10
2410 HPAINT(212,95),2,10
2420 HPAINT(216,95),7,10
2430 POKE65496,0
2440 FOR=1 TO 900: NEXT
2450 FOR=1 TO 500: NEXT
2460 PALETTE RND(9),RND(63)
2470 GOTO 2450
2480 POKE65496,0: PALETTE RGB: FOR=
=1 TO 1000: NEXT: END

```

LISTING TEN: '3KANGA'

```

0 GOTO 5
3 SAVE"175J:3":END:T
5 REM 3KANGA! BY JOHANNA
6 POKE65497,0
7 ONBRK GOTO 250
8 PALETTE RGB
10 HSCREEN 2
15 HCLS 7
20 HDRAW"BM176,20C3M+4,8M+1,6M-1
,+6U4M+12,-15M+2,2M+1,6M-1,6G8M-
4,+12M+2,15M-2,+15
30 HDRAW"BM176,20M-4,+8M-1,+6M+1
,6R8L8M-2,-2M-3,+1M-6,+1L8M-10,+
3M+1,5M+1,4RM+6,-2M+6,6M-2,+8M-2
,+4M-24,20X-20,6M-18,10
40 HDRAW"BM92,104M-6,12M-1,+6M+3
,6M+8,8M+8,6M+6,2R16M+8,-2M+1,8M
-6,+16D3M+3,2M+4,-2M+8,-3M+8,-2M
+8,-3M+8,-2M+8,-3M+8,1M+4,1U3M-4
,-4M-4,-2L8M-8,+2M-12,+4M-8,+2M+
3,-18M+6,-16M+12,-10M+6,-6M+8,-1
0
45 HDRAW"BM122,144M-12,+12M-12,+
10M-12,+6M-16,+2M-16,-1M-16,-8M+
8,2M+8,1M+10,-1M+10,-2M+8,-6M+8,
-6M+6,-6M+6,-6
50 HDRAW"BM167,112M+12,1M+2,4D4M
-2,4M-4,8M-10,18BM148,140M+6,-3M
+6,2BM164,132M-6,14M-8,10BM148,1
66M-2,4R10M+16,-4M+16,-3M+12,2M+
2,-4M-2,-4M-12,-3
60 HDRAW"BM120,108M+16,-4M+8,2M+
8,3M+5,2M-2,+12
70 HDRAW"BM164,70M+2,6M-2,+6M-2,
+6M+12,-3M+6,-1M+6,8M-2,6M-2,+2M
-2,-4M-4,-3M-22,+4M-1,-4M+1,-4M+
2,-8
80 HDRAW"BM183,86M+9,-2M+4,2M+2,
8M-2,+4M-5,+1M+2,-5M-2,-3M-4,+1
90 HDRAW"BM150,44M-6,+1BM151,48M
-4,+2M-2,-4
91 HCIRCLE(170,44),5,,6
92 HCIRCLE(170,44),1,5
93 HPAINT(170,45),5,3
94 HPAINT(148,150),5,3
96 HPAINT(10,10),5,3
150 POKE65496,0
200 PLAY"TSO3L2CL4FL2AL4GL2FDFP2G
P2CL4EL2GL4B-O4L2DL1CO3L2AO4L4CL
2O3AL4GL2FDFP2L2.GL4DL2CL4EL2GL4F
L2EFO4L4CCOCL2CO3CL4FL2AL4GL2FDF
2GP2CL4EL2GL4B-O4L2DL1CL2O3AO4L4
CO3L2AL4GL2FDF2GP2CL4EL2GL4FL2EL
1F"
220 FORP=1 TO 63: PALETTES, P: FOR=
=1 TO 60: NEXT: NEXT
230 GOTO 200
250 POKE65496,0: PALETTE RGB: END

```


SUBTRACTION OF A FRACTION

32K ECB
EDUCATION

by Bob Horne

SUBTRACTION OF FRACTIONS has many subroutines which are the same as in "Addition of Fractions". If you have that program, you should check them out and save yourself a lot of typing by RENUMBERING.

The tutorial is limited this time to a demonstration of the way the sums are done.

I considered that the full tutorial of "Addition of Fractions" has covered this area pretty well.

Also, if like me, you do addition of fractions before tackling subtraction, most of you students would have a pretty good idea of what to do in subtraction (except, of course, regrouping).

The evaluation of "who needs help" is again at the end of the program and is almost the same as in "Addition of Fractions". Again, you may change the "ZZZZ" password in line 2370 to whatever you wish.

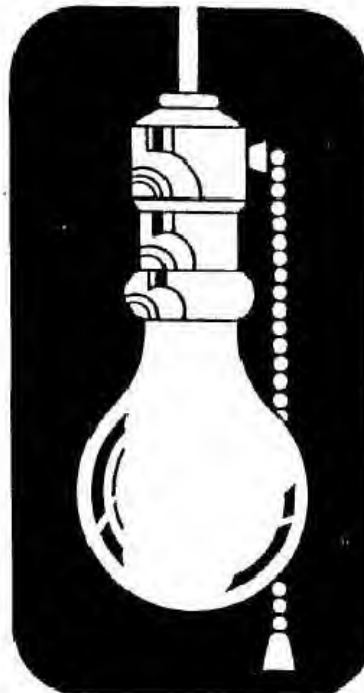
My comments on altering the names to suit your class also apply to this program.

The graphics reward is different although I have still used the rocket from "Addition of Fractions". This time a small alien ship is darting about near the top of the screen.

As each sum is completed, it senses the rocket coming and tries to make an escape by darting away. Of course, it cannot escape the rocket which proceeds to destroy the alien.

The Listing:

```
0 GOTO10
1 REM*****
2 REM* SUBTRACTION *
3 REM* OF FRACTIONS *
4 REM* BY *
5 REM* BOB HORNE *
6 REM*****
7 SAVE"87A:3":END
```



```
10 PCLEAR4: CLEAR500: TL=23: DIMC$,
W$, CH$(58), R(10), RD(10), Z(8), FR(
58), FB(53), FS(10), N$(TL), R$(TL),
TT(4), HL(8): CLS: PRINT@195, "SUBTR
ACTION OF FRACTIONS."; PRINT@271
,"BY";: PRINT@331, "BOB HORNE.";: S
CREEN0,1
20 FORZ=0TO58: READCH$(Z): NEXTZ: F
ORZ=1TO TL: READN$(Z): NEXTZ: FORZ=
1TO TL: R$(Z)=STRING$(4,32): NEXTZ
:P$="L16T16P16": P1$="T12V15Q3CEG
O4L2C03L4GO4L2C": P2$="L6T6P6": P3
$="T30L100O1V30CFDEGV22ABGFDEV14
CGADFEQV7CFDEGV1ADCGEFB": A=RND(
TIMER)
30 COLOR5,8: PMODE1,1: PCLS: DRAW"B
M2,14UE2F2DUH2UR2U7F2D3L2U6H2G2D
6L2U3E2D7R2": GET(0,0)-(10,18), R,
G: DRAW"C7BM50,50NE3NF3NG3NH3": GE
T(45,45)-(55,55), FS, G: PCLS
40 PMODE1,3: PCLS: L=22: Y2=0: S=8: L
INE(0,0)-(255,17), PSET, BF: LINE(6
8,2)-(185,15), PRESET, BF: X1=73: Y1
=14: C1=6: C$="H FOR HELP": GOSUB70
```

```
50 DRAW"C6": CG=170: LINE(0,CG)-(2
55,CG+20), PSET, BF: LINE(35,CG+4)-
(218,CG+16), PRESET, BF: PMODE1,1
60 GOTO570
69 REM***DIVIDE UP TO PRINT***
70 IF LEN(C$)<=L THENW$=C$:GOSUB
110: RETURN
80 FOR T=L TO1STEP-1: IF MID$(C$,T
,1)=" " THEN100
90 NEXTT
100 W$=LEFT$(C$,T): GOSUB110: C$=R
IGHT$(C$, (LEN(C$))-T): GOTO70
109 REM***TO GRAPHICS SCREEN***
110 IF SC=1 THEN160 ELSE DRAW"S=S
;C=C1: BM'+STR$(X1)+", "+STR$(Y1)
120 FOR I=1TOLEN(W$)
130 F=ASC(MID$(W$,I,1))-32
140 DRAWCH$(F)+"BR3"
150 NEXTI: Y1=Y1+Y2: RETURN
159 REM***TO TEXT SCREEN***
160 PRINTW$: RETURN
169 REM*****DRAW BOX*****
170 DRAW"C8": LINE(0,120)-(255,17
5), PSET, B: RETURN
179 REM***CLEAR BOX***
180 LINE(2,122)-(253,173), PRESET
,BF: RETURN
189 REM*****DRAW FRACTION*****
190 A$=STR$(A5): B1$=STR$(B2): A5
$=RIGHT$(A5$, LEN(A5$)-1): B1$=RIG
HT$(B1$, LEN(B1$)-1): L5=LEN(A5$):
L6=LEN(B1$)
200 IF L5=L6 THEN A7=X: B6=X ELSE
IF L5=1 AND L6=2 THEN A7=X+6: B6
=X ELSE IF L5=2 AND L6=1 THEN A7
=X: B6=X+6
210 DRAW"C=C1;": IF K<>0 THEN220
ELSEX1=A7: C$=A5$: GOSUB70
220 IF L5=2 AND L6=1 THEN LINE(A
7-2,Y1+5)-(A7+20,Y1+5), PSET ELSE
LINE(B6-2,Y1+5)-(B6+L6*10+2,Y1+
5), PSET
230 X1=B6: Y1=Y1+19: C$=B1$: GOSUB7
0: Y1=Y1-11: RETURN
239 REM**CHECK FOR LOWEST TERMS*
240 FORZ=B1 TO2 STEP-1
250 IF B2/Z=INT(B2/Z) AND D2/Z=I
NT(D2/Z) THEN CD=CD/Z: B2=B2/Z
260 NEXTZ: RETURN
269 REM***INPUT A NUMBER***
270 IN$=INKEY$
280 IN$=INKEY$: IF IN$<>" " THEN33
0 ELSE PLAYP$: DRAW"S8C5BM73,14U3
NU2R3U2D5C=C1;": LINE(X1,Y1-8)-(X
```

```

1+6,Y1),PSET,BF
290 IF RND(2)=1 THEN M1=-2 ELSE
M1=2
300 IF M>232 THEN M1=-2 ELSE IF M<
200 THEN M1=+2
310 M=M+M1:PUT(M,18)-(M+10,28),F
S,PSET
320 PLAYP$:DRAW"C6BM73,14U3NU2R3
U2D5C=C1;":LINE(X1,Y1-8)-(X1+6,Y
1),PSET,BF:GOTO280
330 IF IN$="H" AND H1=0 THEN GOSU
B370:GOTO270
340 IF ASC(IN$)<48 OR ASC(IN$)>5
7 THEN280
350 IF IN$=MID$(AN$,TT,1) THEN C$
=IN$:GOSUB70:PLAYP$:RETURN
360 WA=WA+1:X=X1:Y=Y1:X1=38:Y1=C
G+15:S1=S:S=8:C$="SORRY TRY AGAI
N":GOSUB70:PLAYP$:FORZ=1TO4:PL
AY"T2500+V30DFDGD":NEXTZ:GOSUB54
0:LINE(35,CG+4)-(218,CG+16),PRES
ET,BF:X1=X:Y1=Y:S=S1:GOTO270
369 REM*****HELP!*****
370 H1=1:X3=X1:Y3=Y1:X1=130:HL(H
)=HL(H)+1:ON H GOTO380,410,420,4
20,410,490,500,500
380 B5$=STR$(B):B6$=STR$(D):B5$=
RIGHT$(B5$,LEN(B5$)-1):B6$=RIGHT
$(B6$,LEN(B6$)-1):C1=8:Y1=Y3+20:
IF TZ<3 THEN C$="IT'S IN THE":GO
SUB70:Y1=Y1+15:C$="SUM.":GOSUB70
:GOTO400 ELSE C$="TRY "+B5$+"X"+
B6$
390 IF B*D=CD THEN GOSUB70:GOTO40
0 ELSE B7=B*D/CD:B7$=STR$(B7):B7$
=RIGHT$(B7$,LEN(B7$)-1):C$=C$+" /
"+B7$:GOSUB70
400 C1=8:X1=X3:Y1=Y3:RETURN
410 S=8:C$="SUBTRACT":GOSUB70:Y1
=Y1+15:C$="WHOLE.":GOSUB70:X1=X
3:Y1=Y3:DRAW"C=C1;":S=12:RETURN
420 X=130:IF H=3 THEN A5=A:B2=B:
LS$=STR$(CD/B):LS=LEN(LS$) ELSE
A5=C:B2=D:LS$=STR$(CD/D):LS=LEN(
LS$)
430 GOSUB190:IF L5=2 AND L6=1 TH
EN X1=A7+25 ELSE X1=B6+L6*10+7
440 C$="":GOSUB70:Y1=Y1-3:X5=X1
+15:IF L5=1 AND L6=2 THEN X1=X5+6:
ELSE X1=X5
450 IF L5=2 AND L6=1 THEN X4=X1+
56 ELSE IF L5=3 AND L6=1 THEN X4
=X1+68 ELSE IF L5=2 AND L6=2 THE
N X4=X1+56 ELSE X4=X1+80
460 LINE(X5,Y1)-(X4,Y1),PSET:C$=
A5$+" X"+LS$
470 Y1=Y1-5:GOSUB70:X1=X5:Y1=Y1+
19:C$=B1$+" X"+LS$
480 GOSUB70:X1=X3:Y1=Y3:DRAW"C=C
1;":RETURN
490 X1=120:Y1=Y1+5:C$="SUBTRACT"
:GOSUB70:Y1=Y1+15:C$="NUMERATORS
":GOSUB70:DRAW"C=C1;":X1=X3:Y1=Y
3:RETURN
500 DRAW"C7":LINE(120,Z(2)+18)-(
255,Z(8)+40),PSET,B: X1=125:S=12:
Y1=Z(6)+36:C$=A5$:GOSUB70:X1=140
:Y1=Z(5)+36:S=8:C$="+":GOSUB70:Y
1=Z(2)+36:X=X1+15:A5=A1:B2=CD:GO
SUB190:IF L6=1 THEN X1=X1+20 ELSE
X1=X1+30
510 C$="":GOSUB70:S=12:X1=X1+15
:Y1=Z(6)+36:C$=A5$:GOSUB70:X1=X1

```

```

+15:Y1=Z(5)+36:S=8:C$="+":GOSUB7
0:X=X1+15:Y1=Z(2)+36:A5=A4:GOSUB
190:X1=X3:Y1=Y3:IF H=7 THEN S=12
:RETURN ELSE RETURN
519 REM**PRESS ENTER (GRAPHICS)*
520 DRAW"C6":LINE(0,176)-(255,19
1),PSET,BF:X1=50:Y1=188:C1=5:C$=
"PRESS <ENTER>":GOSUB70:IN$=INKE
Y$
530 IN$=INKEY$:IF IN$<>CHR$(13)
THEN530 ELSE X1=0:RETURN
539 REM*****DELAY*****
540 FORZ=1TO1500:NEXTZ:RETURN
549 REM**PRESS ENTER (TEXT)**
550 PRINT@484,"PRESS <ENTER> TO
CONTINUE.":IN$=INKEY$
560 IN$=INKEY$:IF IN$<>CHR$(13)
THEN560 ELSE RETURN
569 REM*****WHICH KIND?*****
570 X=128:CLS:PRINT@0,STRING$(3,
X)"which"CHR$(X)"kind"CHR$(X)"wo
uld"CHR$(X)"you"CHR$(X)"like"STR
ING$(4,X):POKE1052,46
580 POKE1216,49:PRINT@193,">COMM
ON FRACTIONS.":POKE1280,50:PRIN
T@257,">MIXED NUMERALS - NO REGR
OUPING.":POKE1344,51:PRINT@321,"
>MIXED NUMERALS - REGROUPING.":
590 PRINT@384,STRING$(2,X)"pleas
e"CHR$(X)"type"CHR$(X)"a"CHR$(X)
"number"STRING$(3,X)"to"STRING$(
5,X):POKE1409,42:POKE1431,49:PO
KE1436,51:POKE1437,42:IN$=INKEY$
600 IN$=INKEY$:IF IN$="" THEN POK
E1437,106:PLAYP2$:POKE1437,42:PL
AYP2$:GOTO600 ELSE IF ASC(IN$)<4
9 OR ASC(IN$)>51 THEN600 ELSE TY
=VAL(IN$)
610 FORZ=192TO384STEP32:PRINT@Z
,STRING$(32,32):NEXTZ
620 POKE1152,49:PRINT@129,">LIK
E DENOMINATORS."
630 POKE1216,50:PRINT@193,">ONE
DENOMINATOR A FACTOR OF THE OT
HER."
640 POKE1312,51:PRINT@289,">UNL
IKE DENOMINATORS."
650 POKE1376,52:PRINT@353,">A M
IXTURE OF THE ABOVE."
660 PRINT@480,CHR$(X)CHR$(X)"ple
ase"CHR$(X)"type"CHR$(X)"a"CHR$(
X)"number"STRING$(3,X)"to"STRING
$(4,X):POKE1505,42:POKE1527,49:
POKE1532,52:POKE1533,46:POKE1535
,32:IN$=INKEY$
670 IN$=INKEY$:IF IN$="" THEN POK
E1534,106:PLAYP2$:POKE1534,42:PL
AYP2$:GOTO670 ELSE IF ASC(IN$)<4
9 OR ASC(IN$)>55 THEN670
680 TA=VAL(IN$):CLS
689 REM*****GET NAME*****
690 WA=0:INPUT"TYPE YOUR FIRST N
AME, A SPACE AND THE INITIAL O
F YOUR LAST NAME:- ";N$:FORZ=
1TO TL:IF N$=N$(Z) THEN TS=Z:Z=T
L:NEXTZ:GOTO710
700 NEXTZ:PRINT"SORRY, THAT NAME
IS NOT ON THE LIST. TYPE THAT
AGAIN PLEASE.":GOSUB540:GOTO690
709 REM*****INTRO*****
710 SC=0:COLOR5,8:PMODE1,1:PCLS:
SCREEN1,1:L=22:S=8:Y2=15:PCLS:X1
=20:Y1=10:C1=8:C$="BEFORE YOU CA

```

```

N SUBTRACT FRACTIONS THEY MUST H
AVE THE SAME NAME - THAT IS THEY
MUST HAVE THE SAME DENOMINATOR.
":GOSUB70
720 GOSUB520:PCLS:X1=10:Y1=10:C1
=8:C$="IF THEY DO NOT HAVE THE S
AME DENOMINATOR THEN YOU MUST CH
ANGE ONE - OR BOTH - SO THAT THE
Y ARE THE SAME.":GOSUB70:GOSUB52
0
730 PCLS:X1=10:Y1=10:C1=8:C$="TO
DO THIS FIND THE SMALLEST NUMBE
R THAT BOTH DENOMINATORS WILL DI
VIDE INTO.":GOSUB70
740 Y1=Y1+10:C1=7:C$="THIS IS CA
LLED FINDING THE LEAST COMMON DE
NOMINATOR (L.C.D.)":GOSUB70:GOSU
B520
750 IF TA=4 THEN980
760 PCLS:L=23:Y1=60:C1=7:C$="DO
YOU WANT TO SEE THE LESSON FOR Y
OUR KIND OF SUM?":GOSUB70:Y1=Y1+
10:C1=8:C$="PLEASE TYPE <Y> OR <
N>":GOSUB70:IN$=INKEY$
770 IN$=INKEY$:IF IN$="N" THEN98
0 ELSE IF IN$<>"Y" THEN770
780 SC=0:ON TA GOTO790,830,900,9
80
789 REM*****TYPE 1*****
790 PCLS:Y2=0:X=20:Y1=20:C1=7:A5
=5:B2=10:GOSUB190:X1=50:C$="-":G
OSUB70:X=70:Y1=20:A5=2:GOSUB190
800 X1=0:Y1=65:C$="":GOSUB70:X=
20:Y1=55:A5=3:GOSUB190:L=22:Y2=1
5:X1=2:Y1=145:GOSUB170:C1=7:C$="
IN A SUM LIKE THIS THE L.C.D. IS
PRESENT.":GOSUB70:GOSUB540
810 GOSUB180:X1=25:Y1=137:C$="TO
FIND THE ANSWER JUST SUBTRACT T
HE NUMERATORS.":GOSUB70:GOSUB520
820 GOTO1010
829 REM*****TYPE 2*****
830 PCLS:Y2=0:X=20:Y1=20:C1=6:A5
=4:B2=5:GOSUB190:X1=40:C1=8:C$="
-":GOSUB70:X=60:Y1=20:C1=7:A5=1:
B2=10:GOSUB190:GOSUB170
840 L=22:Y2=15:X1=6:Y1=145:C1=7:
C$="2 WILL DIVIDE INTO 10 SO THE
L.C.D. IS 10.":GOSUB70:GOSUB540
:GOSUB180
850 X1=30:Y1=137:C$="MULTIPLY TH
E NUMERATOR AND DENOMINATOR BY 2
.":GOSUB70:GOSUB540:GOSUB180
860 X1=6:Y1=145:C$="I.E. SWAP TH
E 4-FIFTHS FOR 8-TENTHS":GOSUB70
:GOSUB540
870 Y2=0:X1=0:Y1=65:C1=8:C$="":
GOSUB70:X=20:Y1=55:C1=6:A5=8:B2=
10:GOSUB190:X1=60:C1=8:C$="-":GO
SUB70:X=85:Y1=55:C1=7:A5=1:GOSUB
190:GOSUB540:GOSUB180
880 Y2=15:X1=30:Y1=137:C1=8:C$="
NOW SUBTRACT THE NUMERATORS TO G
ET 7-TENTHS.":GOSUB70:X1=0:Y1=10
0:C1=7:C$="":GOSUB70:Y2=0:X=20:
Y1=90:A5=7:GOSUB190:GOSUB520
890 GOTO1010
899 REM*****TYPE 3*****
900 L=22:PCLS:Y2=0:X=26:Y1=20:C1
=6:A5=4:B2=5:GOSUB190:X1=48:C1=8
:C$="-":GOSUB70:X=71:Y1=20:A5=1:
B2=2:GOSUB190
910 GOSUB170:Y2=15:X1=6:Y1=145:C

```



```

1=7:C$="IN THIS SUM THE L.C.D. I
S NOT PRESENT":GOSUB70:GOSUB540:
GOSUB180:X1=30:Y1=137:C$="2 AND
5 WILL BOTH DIVIDE INTO 10.":GOS
UB70:GOSUB540
920 C$="THE L.C.D. IS 10.":GOSUB
70:GOSUB540:GOSUB180
930 X1=6:Y1=145:C$="SWAP THE 4-F
IFTHS FOR 8-TENTHS.":GOSUB70:GOS
UB540:Y2=0:X1=0:Y1=65:C1=8:C$="=
":GOSUB70:X=20:Y1=55:C1=6:A5=8:B
2=10:GOSUB190:X1=48:Y1=65:C1=6:C
$="":GOSUB70
940 GOSUB180:Y2=15:X1=18:Y1=145:
C1=7:C$="NOW SWAP THE 1-HALF FOR
5-TENTHS.":GOSUB70:GOSUB540
950 Y2=0:X=65:Y1=55:C1=8:A5=5:B2
=10:GOSUB190:GOSUB540
960 GOSUB180:Y2=15:X1=55:Y1=145:
C1=7:C$="SUBTRACT THE NUMERATORS
.":GOSUB70:GOSUB540:Y2=0:X1=0:Y1
=100:C$="":GOSUB70:X=20:Y1=90:C
1=7:A5=3:GOSUB190:GOSUB540:GOSUB
520
970 PCLS:Y2=15:X1=10:Y1=15:C1=8:
C$="IN THE EXAMPLE WE JUST SAW,
THE L.C.D. WAS NOT PRESENT.":GOS
UB70:Y1=Y1+15:C$="BOTH FRACTIONS
WERE ALTERED TO A COMMON DENOMI
NATOR.":GOSUB70:GOSUB520
979 REM*****TYPE 4*****
980 L=22:PCLS:X1=10:Y1=15:C1=7:I
F TA<3 THEN1010 ELSE IFTA=4 THEN
C$="IN SOME CASES THE L.C.D. IS
PRESENT.":GOSUB70:Y1=Y1+10
990 C1=8:C$="IN MOST CASES, THE
L.C.D. CAN BE FOUND BY MULTIPLYI
NG THE DENOMINATORS - GETTING TH
EIR PRODUCT":GOSUB70:GOSUB520
1000 PCLS:Y1=15:C1=8:C$="SOMETIM
ES IN A SUM, THE L.C.D. IS LESS
THAN THE PRODUCT OF THE TWO DENO
MINATORS.":GOSUB70:Y1=Y1+10:C1=7
:C$="E.G. IF THE TWO DENOMINATOR
S ARE 4 AND 6 THEIR PRODUCT IS 2
4 BUT THE L.C.D. IS 12.":GOSUB70
:GOSUB520
1009 REM*****A BIT MORE*****
1010 PCLS:L=23:Y2=15:C1=8:IF TY=
1 THEN1000 ELSEY1=50:C$="IF YOU
HAVE WHOLE NUMBERS IN THE SUM, S
UBTRACT THEM FIRST AND THEN PROC
EED AS USUAL.":GOSUB70:GOSUB520:
PCLS:C1=8
1020 IF TY<>3 THEN1060
1030 L=23:X1=0:PCLS:Y2=14:Y1=10:
C1=7:C$="SOMETIMES YOU HAVE TO R
EGROUP THE FIRST NUMBER.":GOSUB7
0:Y2=0:X1=65:Y1=70:C1=6:S=12:C$=
"6":GOSUB70
1040 X=80:Y1=58:S=8:A5=3:B2=7:GO
SUB190:X1=95:Y1=66:C$="":GOSUB7
0:X1=110:Y1=70:S=12:C$="5":GOSUB
70:X1=125:Y1=66:S=8:C$="+":GOSUB
70:X=140:Y1=58:A5=10:GOSUB190
1050 Y2=15:X1=0:Y1=102:C1=8:C$="
NOTE THAT ONE WAS TAKEN FROM THE
WHOLE NUMBER, CHANGED TO 7-SEVE
NTHS, THEN ADDED TO THE 3-SEVENT
HS.":GOSUB70:GOSUB520:PCLS
1060 Y1=75:C1=8:C$="WOULD YOU LI
KE TO SEE THAT AGAIN?":GOSUB70:Y
1=Y1+10:C$="PLEASE TYPE <Y> OR <
N>":GOSUB70:IN$=INKEY$

```

```

1070 IN$=INKEY$:IF IN$="Y" THEN7
10 ELSE IF IN$<"N" THEN1070
1079 REM*****GET A SUM*****
1080 PCLS:L=22:S=8:NU=0:FORZ=1TO
8:HL(Z)=0:NEXTZ
1090 C1=8:X1=0:Y1=90:C$="JUST A
MOMENT PLEASE.":GOSUB70:IF TA=4
THEN TZ=RD(3) ELSE TZ=TA
1100 ON TZ GOTO1110,1190,1280
1110 IF TY<3 THEN1140 ELSE B=RND
(19)+1:D=B:C=RND(B-1):A=RND(C-1)
1120 IF A<1 THEN1110
1130 IF A/B-C/D<0 THEN1150 ELSE1
110
1140 B=RND(19)+1:A=RND(B-1):IF A
=<1 THEN1140 ELSEC=RND(A-1)
1150 B1=A:B2=A:D2=B:CD=B:GOSUB24
0:IF CD<>B THEN1110
1160 B1=C:B2=C:D2=B:CD=B:GOSUB24
0:IF CD<>B THEN1110
1170 D=B:A2=C:IF TY=3 THEN A1=A:
A4=CD+A:A3=A4-C ELSE A3=A-C
1180 GOTO1410
1190 IF TY<3 THEN1220 ELSEB=RND(
8)+1:D=B*(RND(4)+1):C=RND(D-1):A
=RND(C-1)
1200 IF A<1 THEN1190
1210 IF A/B-C/D<0 THEN1240 ELSE1
190
1220 B=RND(8)+1:A=RND(B-1):IF A=
1 THEN1220 ELSE D=B*(RND(4)+1):C=
RND(D-1)
1230 IFA/B-C/D<0 THEN1220
1240 CD=B:B1=A:B2=A:D2=B:GOSUB24
0:IF CD<>B THEN1190
1250 CD=D:B1=C:B2=C:D2=D:GOSUB24
0:IF CD<>D THEN1190
1260 A1=A*D/B:A2=C:IF TY=3 THEN
A4=A1+CD:A3=A4-C ELSE A3=A1-A2
1270 GOTO1410
1280 IF TY<3 THEN1320 ELSE D=RND(
9)+1:C=RND(D-1):B=RND(C-1):A=RND
(B-1)
1290 IF A<1 THEN1280
1300 IF D/B=INT(D/B) THEN1280
1310 IF A/B-C/D<0 THEN1350 ELSE1
280
1320 B=RND(9)+1:A=RND(B-1):D=RND
(9)+1:C=RND(D-1)
1330 IF B/D=INT(B/D) OR D/B=INT(
D/B) THEN1320
1340 IF A/B-C/D<0 THEN1320
1350 CD=B:B1=A:B2=A:D2=B:GOSUB24
0:IF CD<>B THEN1280
1360 CD=D:B1=C:B2=C:D2=D:GOSUB24
0:IF CD<>D THEN1280
1370 IF B<D THEN B1=B:B2=B:D2=D
ELSE IF D<B THEN B1=D:B2=D:D2=B
1380 CD=B*D:GOSUB240
1390 IF CD>50 THEN1320
1400 A1=CD/B*A:A2=CD/D*C:IF TY=3
THEN A4=A1+CD:A3=A4-A2 ELSE A3=
A1-A2
1409 REM***PUT SUM ON SCREEN***
1410 M=216:K=0:Y2=0:NU=NU+1:Z(1)
=20:Z(2)=34:Z(3)=36:Z(4)=38:Z(5)
=42:Z(6)=46:Z(7)=49:Z(8)=52:PMOD
E1,3:IF TY=1 THEN1440
1420 W1=RND(8)+1:W2=RND(W1-1):AW
=W1-W2:IF AW<2 THEN1420 ELSE W1$
=STR$(W1):W2$=STR$(W2):AW$=STR$(
AW):W1$=RIGHT$(W1$,LEN(W1$)-1):W
2$=RIGHT$(W2$,LEN(W2$)-1):AW$=RI
GHT$(AW$,LEN(AW$)-1)

```

```

1430 X1=15:Y1=Z(6):S=12:C1=6:C$=
W1$:GOSUB70:S=8
1440 IF TY=1 THEN X=15 ELSE X=30
1450 Y1=Z(2):C1=6:A5=A:B2=B:GOSU
B190
1460 IF L6=1 THEN X1=X+20 ELSE X
1=X+30
1470 C1=7:C$="":GOSUB70:X1=X1+2
0
1480 IF TY=1 THEN1500
1490 S=12:Y1=Z(6):C1=8:C$=W2$:GO
SUB70:S=8:X1=X1+20
1500 X=X1:Y1=Z(2):C1=8:A5=C:B2=D
:GOSUB190
1510 GET(13,20)-(125,58),FR,G:PU
T(13,20)-(125,55),FB,PSET:PUT(13
,125)-(125,163),FR,PSET
1520 X1=10:Y1=14:C1=5:C$=STR$(NU
):GOSUB70
1530 FORZ=120TO20STEP-5:PMODE1,3
:PUT(13,Z)-(125,Z+38),FR,PSET:PC
OPY3TO1:PCOPY4TO2:NEXTZ:PUT(13,2
0)-(125,55),FB,PSET:DRAW"C8":LIN
E(20,0)-(34,14),PSET,BF
1540 PMODE1,1:H=1:H1=0:X1=130:Y1
=45:C1=6:C$="L.C.D.=":GOSUB70
1550 CD$=STR$(CD):CD$=RIGHT$(CD$
,LEN(CD$)-1):LN=LEN(CD$):AN$=CD$
:IF LN=1 THEN X2=240 ELSE IF LN=
2 THEN X2=252
1560 DRAW"C7":LINE(223,Y1-15)-(X
2,Y1+3),PSET,B:C1=8:FORZ=245TO21
6STEP-1:PUT(Z,18)-(Z+10,28),FS,P
SET:NEXTZ
1569 REM*****GET THE L.C.D.*****
1570 FORTT=1TO LN
1580 X1=226+(TT-1)*10
1590 GOSUB270
1600 NEXTTT:LINE(130,Y1-15)-(X2,
Y1+3),PRESET,BF:IF H1=1 THEN LIN
E(130,50)-(255,85),PRESET,BF
1610 FORZ=1TO8:Z(2)=Z(2)+36:NEXT
Z:X1=0:Y1=Z(5):C1=8:C$="":GOSUB
70
1619 REM*****SECOND LINE*****
1620 IF TY=1 AND TZ=1 THEN1880 E
LSE IF TZ=1 THEN1650
1630 A1$=STR$(A1):A1$=RIGHT$(A1$
,LEN(A1$)-1):LA=LEN(A1$)
1640 IF TY=1 THENX=15:GOTO1660
1650 DRAW"C7":LINE(13,Z(1))-(27,
Z(7)),PSET,B:X1=30:Y1=Z(5):C1=7:
C$="+":GOSUB70:X=45
1660 C1=6:Y1=Z(2):IF TY>1 AND TZ
=1 THENA5=A:K=0 ELSEA5=A1:K=1
1670 B2=CD:GOSUB190:P1=A7:X1=X+L
N*10+10:C1=7:C$="":GOSUB70
1680 IF TZ<3 THEN K=0 ELSE K=1
1690 X=X1+20:Y1=Z(2):C1=8:A5=A2:
B2=CD:GOSUB190:P2=A7
1700 IF TY=1 THEN 1730 ELSEX1=15
:Y1=Z(6):C1=8:S=12:H=2:H1=0:TT=1
:AN$=AW$:GOSUB270:S=8:LINE(13,Z(
1))-(27,Z(7)),PRESET,B
1710 IF H1=1 THENLINE(130,Z(6)-1
0)-(255,Z(6)+15),PRESET,BF
1720 IF TZ=1 THEN1870
1730 K=0:Y1=Z(2):C1=6:DRAW"C7":L
INE(P1-2,Z(1))-(P1+LA*10,Z(3)),P
SET,B:H=3:H1=0:AN$=A1$
1739 REM*****FIRST NUMERATOR*****
1740 FORTT=1TO LA
1750 X1=P1+(TT-1)*10
1760 GOSUB270

```



```

1770 NEXTTT:LINE(P1-2,Z(1))-(P1+
LA*10,Z(3)),PRESET,B
1780 IF H1=1 THEN LINE(127,Z(3)-
14)-(255,Z(3)+19),PRESET,BF
1790 IF T2=2 THEN1870
1800 A2$=STR$(A2):A2$=RIGHT$(A2$,
LEN(A2$)-1):LA=LEN(A2$):AN$=A2$
1810 DRAW"C7":LINE(P2-2,Z(1))-(P
2+LA*10,Z(3)),PSET,B:C1=8:H=4:H1
=0
1819 REM****SECOND NUMERATOR****
1820 FORTT=1TO LA
1830 X1=P2+(TT-1)*10
1840 GOSUB270
1850 NEXTTT:LINE(P2-2,Z(1))-(P2+
LA*10,Z(3)),PRESET,B
1860 IF H1=1 THEN LINE(127,Z(3)-
14)-(255,Z(3)+19),PRESET,BF
1870 FORZ=1TO8:Z(Z)=Z(Z)+36:NEXT
Z:X1=0:Y1=Z(5):C1=8:C$="":GOSUB
70
1880 A3$=STR$(A3):A3$=RIGHT$(A3$,
LEN(A3$)-1):LA=LEN(A3$):IF TY=1
THENP1=15:GOTO2080
1889 REM*****NEXT LINE*****
1890 IF TY<>3 THEN2050
1900 A4$=STR$(A4):A4$=RIGHT$(A4$,
LEN(A4$)-1):L4=LEN(A4$)
1910 DRAW"C7":LINE(13,Z(1))-(27,
Z(7)),PSET,B:X1=30:Y1=Z(5):C1=7:
C$="":GOSUB70:X=45:Y1=Z(2):C1=6
:K=1:A5=A4:B2=CD:GOSUB190:P1=A7
1920 IF L4=1 THENX1=X+20 ELSE X1
=X+30
1930 C1=7:C$="":GOSUB70:X=X1+20
:Y1=Z(2):K=0:A5=A2:GOSUB190
1940 IF NU<3 THEN X1=130:Y1=Z(5)
:C$="REGROUP":GOSUB70
1950 X1=15:Y1=Z(6):C1=8:S=12:H=7
:H1=0:TT=1:AR$=STR$(AV-1):AR$=RI
GHT$(AR$,1):AN$=AR$:GOSUB280:S=8
1960 LINE(13,Z(1))-(27,Z(7)),PRE
SET,B
1970 DRAW"C7":LINE(P1-2,Z(1))-(P
1+L4*10,Z(3)),PSET,B:AN$=A4$:Y1=
Z(2):C1=6:H=8
1979 REM*****NEW NUMERATOR*****
1980 FORTT=1TO L4
1990 X1=P1+(TT-1)*10
2000 GOSUB280
2010 NEXTTT:LINE(P1-2,Z(1))-(P1+
L4*10,Z(3)),PRESET,B
2020 IF NU<3 THENLINE(130,Z(5)-1
0)-(255,Z(5)),PRESET,BF
2030 IF H1=1 THEN LINE(120,Z(2)+
18)-(255,Z(8)+40),PRESET,BF
2040 FORZ=1TO8:Z(Z)=Z(Z)+36:NEXT
Z:X1=0:Y1=Z(5):C1=8:C$="":GOSUB
70
2049 REM*****FINAL LINE*****
2050 IF TY=3 THEN AW$=AR$
2060 IF TZ>2 OR (TY>2 AND TZ=1
) THENX1=15:Y1=Z(6):C$=AW$:S=12:G
OSUB70:S=8
2070 P1=30
2080 X=P1:Y1=Z(2):C1=8:K=1:A5=A3
:B2=CD:GOSUB190:K=0:P1=A7
2090 IF TY=1 THEN2110
2100 IF H1=1 THEN LINE(130,Z(6)-
10)-(255,Z(6)+15),PRESET,BF
2110 DRAW"C7":LINE(P1-2,Z(1))-(P
1+LA*10+2,Z(3)),PSET,B:Y1=Z(2):C
1=8:H=6:H1=0:AN$=A3$
2119 REM*****GET NUMERATOR*****

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```

2120 FORTT=1TO LA
2130 X1=P1+(TT-1)*10
2140 GOSUB270
2150 NEXTTT:LINE(P1-2,Z(1))-(P1+
LA*10+2,Z(3)),PRESET,B
2160 IF H1=1 THEN LINE(120,Y1-5)
-(255,Y1+22),PRESET,BF
2169 REM*****MADE IT THROUGH****
2170 X1=38:Y1=CG+15:C$="CONGRATU
LATIONS":GOSUB70:GOSUB540:PLAYP3
$
2180 IF M>216 THEN FORZ=M TO216S
TEP-1:PUT(Z,18)-(Z+10,28),FS,PSE
T:NEXTZ
2190 IF M<216 THEN FORZ=M TO216:
PUT(Z,18)-(Z+10,28),FS,PSET:NEXT
Z
2200 FORZ=1TO6:GET(216,20)-(226,
30),RD,G:PUT(216,18)-(226,28),RD
,PSET:NEXTZ:FORZ=1TO500:NEXTZ
2210 FORZ=1TO14:PUT(220,168-Z)-
(230,168),R,PSET:NEXTZ
2220 R1=220:FORZ=150TO18STEP-1:P
UT(R1,Z)-(R1+10,Z+18),R,PSET:WEX
TZ
2230 FORZ=1TO16:GET(R1,20)-(R1+1
0,38),RD,G:PUT(R1,18)-(R1+10,36)
,RD,PSET:NEXTZ
2240 FORZ=1TO30:SCREEN1,0:SCREEN
1,1:NEXTZ:FORZ=1TO21STEP2:CIRCLE
(225,10),Z,5:NEXTZ:PLAY"L180T200
2V5FFGEEFDDV20ECDBBCAAB01V31GGF
EEDFFECDBBCDDCBAAAGABBAV6AACBCD
GEFAACBA":FORZ=8TO5STEP-1:FORZ1=
1TO21STEP2:CIRCLE(225,10),Z1,Z:N
EXTZ1,Z
2250 FORZ=1TO500:NEXTZ:PCLS
2260 IF NU<5 THEN1090
2269 REM*****NEXT PLAYER*****
2270 L=23:Y2=0:X1=50:Y1=73:C1$="
NEXT PLAYER":FORZ=1TO LEN(C1$):C
1=RND(3)+5:C$=MID$(C1$,Z,1):GOSU
B70:X1=X1+12:NEXTZ:FORZ=1TO1000:
NEXTZ
2280 X1=38:Y1=95:C1$="PRESS <ENT
ER>":FORZ=1TO LEN(C1$):C1=RND(3)
+5:C$=MID$(C1$,Z,1):GOSUB70:X1=X
1+12:NEXTZ:Y2=15:C1=8:X1=0:Y1=16
0:C$="PRESS <E> TO END SESSION."
:GOSUB70:IN$=INKEY$
2289 REM*****WHO NEEDS HELP?****
2290 IF HL(1)>2 THEN MID$(R$(TS)
,1,1)="*":TT(1)=TT(1)+1
2300 IF T2=2 AND HL(3)>2 THEN MI
D$(R$(TS),2,1)="*":TT(2)=TT(2)+1
2310 IF T2=3 AND HL(3)+HL(4)>4 T
HEN MID$(R$(TS),2,1)="*":TT(2)=T
T(2)+1
2320 IF HL(7)+HL(8)>2 THEN MID$(
R$(TS),3,1)="*":TT(3)=TT(3)+1
2330 IF WA>3 THEN MID$(R$(TS),4,
1)="*":TT(4)=TT(4)+1
2340 IN$=INKEY$:IF IN$="E" THEN2
360 ELSE IF IN$<>CHR$(13) THEN23
40
2350 CLS:GOTO690
2358 REM*****<E> PRESSED*****
2359 REM*****WAS IT TEACHER?****
2360 CLS
2370 INPUT"TYPE YOUR FIRST NAME,
A SPACE AND THE INITIAL OF YO
UR LAST NAME: ",N$:IF N$<>"ZZ
ZZ" THENPRINT"SORRY, THAT NAME I
S NOT ON THE LIST. TYPE THAT AG

```

```

AIN PLEASE.":GOSUB540:GOTO2370
2379 REM*****PRINT NAMES*****
2380 CLS:SC=1:FORZ1=1TO4
2390 IF TT(Z1)=0 THENC$="NO-ONE
NEEDS HELP IN " ELSE IF TT(Z1)=1
THEN C$="THIS USER NEEDS HELP I
N " ELSE C$="THESE USERS NEED HE
LP IN "
2400 IF Z1=1 THEN C2$="FINDING T
HE L.C.D." ELSE IF Z1=2 THEN C2
$="EQUIVALENT FRACTIONS." ELSE I
F Z1=3 THEN C2$="REGROUPING MIXE
D NUMERALS." ELSEC2$="TABLES."
2410 L=31:C$=C$+C2$:GOSUB70:IF T
T(Z1)=0 THEN GOSUB550:GOTO2450
2420 X=0:FORZ=1TO TL:IF MID$(R$(
Z),Z1,1)="*" THENPRINTN$(Z):X=X+
1
2430 IF X<>0 AND X/10=INT(X/10)
THENGOSUB550:CLS
2440 NEXTZ:PRINT"THESE ARE NO MO
RE NAMES.":GOSUB550
2450 CLS:NEXTZ1
2459 REM*****RUN AGAIN*****
2460 CLS:PRINT"<R>UN PROGRAM AGA
IN OR <E>ND":PRINT"PLEASE
TYPE <R> OR <E>":IN$=INKEY$
2470 IN$=INKEY$:IF IN$="R" THEN
RUN ELSE IF IN$<>"E" THEN2470
2480 CLS:END
2489 REM*****CHARACTER DATA*****
2490 DATA BR2, BR2UBU2V2BRBD5, BU5N
DBR3DBD4, BRUNLU3NLNURNURD3NLNRD
BR, BRUNLREHL2URNUR2BD4, BR3NUBL3V
E3UBL3DBD4BR3, BRHENF2HEFGED2REBD
, BU5BRRDGBD3BR2, BR2HU3EBRBD5, BR
U3HBD5BR2, BRBUE3BD3NH3BDBR, BU3BR
2DNLNRDBDBR
2500 DATA BRUNRDRNRUDGBU2BR2, BRBU2
R2BD2, BRRLDBR2, BU5BRBU2NL3NR2BU
2LBD5BR3, BRHU3ERFD3GLBR2, R2U5NLD
5R
2510 DATA NR3UEREU2LLGBD4BR3, BU5
REUHNLEUL3BD5BR3, BR3U5D3L3UE2RBD
5, BU5FREUHL2U2R3BD5, BU5FREUHLG2
ERBD5BR, BU4UR3D2G3BR3, BU5FREUHL
NGHERFGD3BR, BRBU3HLGDFREBD3, BR
2UBU2UBD4BR
2520 DATA BR2URD2GBU5URDLBD3BR, BR
2H2UE2BD5BR, BRBU2R2BU2R2BD3, BR2
UH2BD5BR2, BR2UBUUREHL2BD5BR3, U2
NR3U2ERFD4
2530 DATA U3NR2U2R2FGFDGL2BR3, BU
U3ERFBD3GLHDBR3, U5RF2DG2LBR3, NR
3U3NR2U2R3BD5, U3NR2U2R3BD5, BU53E
RBRBD3NLGLHDBR3, U3NU2R3NU2D3, B
RU5BD5BR2, BU5FEU4NRL2BD5BR3, U5D2R
E2G2FD2, NU5R3, U5F2NDE2D5, U5F3U3D
5
2540 DATA BRHU3ERFD3GLBR2, U5R2FDG
L2BD2BR3, BU53ERFD3NHNFGLHDBR3, U
5R2FGL2F3, BU5FEUHL2ERFBD4
2550 DATA BRU5LR3BD5, NU5R3U5BD5,
BU5D3FDRUEU3BD5, NU5E2NUP2NU5, UE2
H2BR3DGF2, BU5D2FRD2NLU2EU2BD5, N
R3UE3UL3BD5BR3
2559 REM*****CLASS NAMES*****
2560 DATA NIGEL B, TRENT B, DANIEL
B, GRANT B, RYAN C, TROY C, JOHN D, K
ERRY E, GAVIN G, SCOTT G, MATTHEW H
, CHRIS K, PAUL L, BRENDAN L, SCOTT
M, DAMON O, DUC P, BRENDAN P, KEN R,
ADAM R, JUSTIN R, SEAN R, JOHN T

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from page 37

section) and/or TOY XYLOPHONE in August 1986 CoCo (Help section).

Both of these programs use a kind of shorthand. Once the note table has been set up (lines 50 - 130 in XYLOPHONE and lines 22 to 36 in MICOXMAS), you can easily add more music in the DATA lines or substitute other music. I think that this method would suit those people who have a little experience with toy xylophones or those little toy pianos which have been replaced by electronic toys!

If you know a bit more about music, you will probably prefer PLAYing.

Swan Line continued...

So I settled down to enjoy a foot(?) massage courtesy of my faithful retainer Manicore (who assured me and I believe him, that his talents lie in different areas) and to watch Karen trying to convince half a dozen hapless young men of her 'large hand' theory.

It must've worked - there were seven in her single bed when I called in to say goodbye on the way home.

It was certainly an interesting (and educational) bash as well as being a lot of fun. I hear it finished around 10am, however I very properly left well before then!

For all those that made it, I hope you've recovered. For those that didn't, there's still the July bash in Brisbane!

See you there!

SVAN

from page 35

```
112: 4 , 0 , 0 , 0 , 0
113: 1 , B4 , G4 , D4 , G3
114: 2 , B4 , G4 , D4 , G3
115: 2 , B4 , G4 , D4 , G3
116: 1 , C5 , G4 , E4 , G3
117: 2 , B4 , G4 , D4 , G3
118: 2 , B4 , F4# , C4 , D3
119: 2 , A4 , F4# , C4 , D3
120: 2 , G4 , B3 , D3 , 0
121: 2 , A4 , F4# , A3 , D3
122: 1 , B4 , G4 , G3 , 0
123: 2 , G4 , B3 , G3 , E3
124: 1 , A4 , B4 , C4 , C3
125: 1 , F4# , D4 , C4 , D3
126: 1 , G4 , D4 , B3 , G3
```

```
COL: LEN , V1 , V2 , V3 , V4
127: 1 , B4 , G4 , D4 , G3
128: 2 , B4 , G4 , D4 , G3
129: 2 , B4 , G4 , D4 , G3
130: 1 , C5 , G4 , E4 , G3
131: 2 , B4 , G4 , D4 , G3
132: 2 , B4 , F4# , C4 , D3
133: 2 , A4 , F4# , C4 , D3
134: 2 , G4 , B3 , D3 , 0
```

Try this:

```
70 PLAY"03V30L8DO2BAGAB03DO2BAG
AB03DO2B03DE02B03EDO2BAGP803DO2
BAGL16ABABL803DO2BAGL16ABABL803
DO2B03DE02B03EDO2BAG"
```

Sound familiar? I'll write more about PLAY some other time.

```
0 GOTO5
3 SAYE"223:3":END'7
5 'SOUNDS AS PER PART2, ARTICLE
10 SOUND108,4: SOUND78,4: SOUND58,
4: SOUND32,4: SOUND58,4: SOUND78,4
20 SOUND 108,4: SOUND78,4: SOUND58
,4: SOUND32,4: SOUND58,4: SOUND78,4
: SOUND108,4: SOUND78,4: SOUND108,4
: SOUND125,4: SOUND78,4: SOUND125,4
```

from page 36

```
1,76E3F3BM161,72E3F3BM160,58E3R5
DL5G2F2L2F2BM127,120U3R2EU2H
50 DRAW"BM193,163G13L35U14H5U4E3
VELGLG2G3D4R3D3U3R2D3L5U3D4R5D2U
2R2D2L7U2D4R6D2U2R2D2L8U2D4R5D2U
2R2D2L7U2D4R4D2U2R2D2L6U2D4R10BM
0,0D2BM4,0D7BM9,0D7U7R5D7BM31,0D
7R5H2F4H3U7L4BM46,0D7R5U7BM61,0R
5L5D3R4L4D4R5BM76,0R5L5D3R4L4D4R
5BM91,0D7U7R5D7
60 DRAW"BM121,0D7R5BM136,0D3R5D4
U7L5D7BM151,0D7U7R5D7BM166,0D7R3
EU5HL3BM184,0D7E3F3U7BM199,0R5L5
D3R4L4D4R5BM0,25R5L3D7BM15,25D7U
4R5U3D7BM30,25R5D3L5F4H4U3D7BM45
,25R5D7L5U7BM60,25D7E3F3U7BM0,45
R5L3D7BM15,45D7U4R5D4U7BM30,45R5
L5D3R4L4D4R5
70 DRAW"BM0,65D7R4E4U2HL4R4E4U2HL4
BM15,65R5L5D3R4L4D4R5BM30,65D7U7
R5D7BM45,65R5L3D7BM0,85R5D7L5U7B
M15,85D7U7R5D7BM30,85R5L5D3R4L4D
4R5BM45,85R5L5D3R5D4L5BM0,105R5D
7L5U7BM15,105D7R5U7BM30,105R5L3D
7BM45,105D2BM106,0R5L5D3R5D4L5"
10000 EXEC44539
```

```
:SOUND108,4:SOUND78,4:SOUND58,4:
SOUND32,4
30 FOR X=1 TO 100:NEXT X
40 SOUND 108,4:SOUND78,4:SOUND58
,4:SOUND32,4:SOUND58,2:SOUND78,2
:SOUND58,2:SOUND78,2:SOUND108,4
50 SOUND78,4:SOUND58,4:SOUND32,4
:SOUND58,2:SOUND78,2:SOUND58,2:S
OUND78,2:SOUND108,4:SOUND78,4:SO
UND108,4:SOUND125,4:SOUND78,4:SO
UND125,4:SOUND108,4:SOUND78,4:SO
UND58,4:SOUND32,4
60 FOR=1TO300:NEXT
65 'PLAY AS PER ARTICLE
70 PLAY"03V30L8DO2BAGAB03DO2BAGA
B03DO2B03DE02B03EDO2BAGP803DO2BA
GL16ABABL803DO2BAGL16ABABL803DO2
B03DE02B03EDO2BAG"
```

from page 41

```
OR P=CHRS(93)THENSOUND1,1:GOTO8
030 'AT ENDS OF STRING
8130 IFG<LEN(H$)THENMID$(H$,G)=
P$ ELSE H$=H$+P$ 'REPLACE OR ADD
8140 PRINTG-1,P$;G=G+1:GOTO803
0
8199 '-----
8200 GOSUB 9000:IF FLAG=1 THEN
RETURN'--- MODULE EXIT HERE
8210 PRINTG480,"illegal- ENTRY";
G=1:GOTO8030
8299 '-----
8300 H=PEEK(1023+G):IFH>64THEWH=
H-64 ELSEH=H+64
8310 POKE 1023+G,H:RETURN'INVERT
VIDEO AT CURSOR (WIDTH32 ONLY)
8998 '-----
8999 'OPTIONAL STRING VALIDATION
MODULE
9000 FLAG=1:IFH$=""THENFLAG=0
9010 'PUT ANY OTHER CHECKS ON
THE STRING HERE. MAKE FLAG=0 IF
YOU WANT THE STRING REJECTED
9020 RETURN
```

from page 43

```
E4":PAINT(64,170),5,5
1490 DRAW"BM80,156E4R4D16R4D4L8U
16L4":PAINT(64,154),5,5
1500 DRAW"BM92,156E4R4D20G4L16R1
6U20L4":PAINT(98,154),5,5
1510 DRAW"BM104,156E4R12F4G4D4F4
G8L12R12E4H4U4E4H4L12":PAINT(112
,154),5,5:LINE(108,160)-(112,164
),PSET,BF:LINE(108,168)-(112,172
),PSET,BF:PAINT(118,166),5,5
1520 DRAW"BM136,148E4R4D12R4D4L8
U12L4":PAINT(142,154),5,5:DRAW"B
M148,148E4R4D28G4L4R4U27L4":PAIN
T(154,154),5,5:DRAW"BM140,164R4D
8G4L4R4U12":PAINT(142,168),5,5
1530 DRAW"BM160,158E4R4D16R4D4L8
U16L4":PAINT(166,164),5,5:DRAW"B
M172,158E4R4D20G4L16R16U20L4":PA
INT(178,164),5,5
1540 DRAW"BM184,158E4R4F4D8H8L4"
:PAINT(187,156),5,5:DRAW"BM196,1
58E4R4D20G4L4R4U20L4":PAINT(202,
160),5,5:DRAW"BM188,162D16L4R4E4
U8H4":PAINT(189,166),5,5
1550 DRAW"BM208,158E4R16D4G4U4L1
4":PAINT(216,156),5,5:DRAW"BM218
,162D16L4R4E4U12L4":PAINT(220,16
6),5,5
1560 DRAW"BM110,60"+X$:DRAW"BM8
0,80"+X$
1570 FOR TI=1 TO 5000:NEXT
1580 RETURN
```


IN BRIEF

Here's What's Happening

SYBIZ: Oz gears up with a winner.

Many packages are presented to the business looking for good accounting software.

And rightly so, many of these are packages which vary greatly both in price and performance.

One package which is emerging as the package to beat is the Sybiz package.

Sybiz offer a range of options for their basic package which include General Ledger, Creditors, Inventory, Multi Location Stock, Debtors, Order Entry & Invoicing, Job Costing, Purchase Orders, Gateway, and now Syzap.

The exciting thing about all these options is that once installed, they are completely interactive and can allow single time entry of details.

But most importantly, they work! And this point is borne out time and again as businesses all around Australia gear up using Sybiz.

At Goldsoft, we've seen and used the system, we'll be implementing it here over the next 12 months, and if you have a business and want to know more, call us and we'll try to help.

Plugs and Cables?

We've introduced a new service.

If you need a cable - no matter what connectors are required, or how long you need it to be, tell us what you need on Viatel, phone or by letter, & we'll get you that cable.

And the even better news is that we can fill most orders within 24 hours - so remember, you got a funny cable you want? We can get it for you!

Shaded Modelling Package

Pro3D is a three dimensional shaded modelling product for the design, examination and presentation of three dimensional images.

Two modeling tools, the profiler and the lathe produce complex objects.

They both feature sophisticated drawing aids for curve generation, editing and duplication as well as full dimensioning.

The profiler is a cross sectional or contour modelling tool whilst the lathe produces

round or radially symmetric objects such as wine glasses, wheels or lamps.

Pro3D includes a merge facility that allows for the creation of a new object through the combination, subtraction or intersection of two objects.

The program uses Post Script to produce high quality three dimensional shaded printouts, and images can be transferred to a variety of other packages.

Pro3D is available from IKON Distributors, PO Box 57, Glebe, NES 2037, and is for MS or PC DOS computers.

'TODAY' — Overseas group selects Oz developed, 4GL program from BBJ Computers Int.

The Australian developed fourth generation language, TODAY, has been selected as a programming tool for the establishment of a major software porting and approval centre in the UK.

The centre is a key element in the plans of the X-OPEN group of computer manufacturers to generate a portfolio of vendor independent software.

The choice of TODAY represents a significant international success for its developer, BBJ Computers Int. Ltd.

TODAY will be used as a programming tool which can be migrated from a number of environments to one main environment. TODAY is the only language chosen to do so.

An administrative system took 800 hours to set up using TODAY. It took 1350 hours using FOCUS, 1900 hours using POWERHOUSE and 4200 hours using APADAS/NATURAL.

The eleven members of the X-Open group are: AT&T, Bull, Digital Equipment, Ericsson, Hewlett-Packard, International computers, Nixdorf, Olivetti, Philips, Siemens and Unysis.

The porting centre will provide the business user with the widest possible range of practical software that conforms to the X-OPEN standards.

BBJ is an Australian company with its headquarters in Melbourne. It has been active in software development since 1975 and launched TODAY in 1985.

Low Cost FAX for PC Owners

We are now able to supply the Microtek Mfax96 card which sits in a slot of any IBM Compatible (it is a 10" card) and allows the sending and receipt of FAXes.

The Mfax96 card reduces transmission cost because it converts the file to analogue off-line, whilst group 3 fax machines convert to analogue after the receiving number has connected. This is important for ISD & STD transmissions.

Because the Mfax96 card's

transmission is at 300 dpi, it has almost double the resolution of group 3 fax machines (the receiving machine must also be capable of the same resolution of course).

Incoming faxes from the Mfax96 card can be printed on any type of printer from low cost dot matrix to laser printers. Therefore the cost of buying thermal paper (usually about 30c per incoming A4 page) is eliminated.

Most group 3 fax machines

allow up to 80 telephone numbers to be stored in the machine's memory - the Mfax96 card gives the user access to a database of 10,000 names and numbers and the software contains a database search facility to quickly locate entries.

The Mfax96 card allows the user to send one file to a number of different fax numbers in the one pass. No group 3 fax machine has this capability.

At \$1995 inc tax, the Mfax96 is THE way to get the FAX!

ARISTA RS232 Data Switch

This invaluable piece of equipment allows for the connection of 2 computers to one peripheral, or two peripherals to one computer.

Connections are D25's so the unit suits T1000's and clones more than CoCo's - however those using CoCo's with cables that have D25's at one end will also benefit.

Cost is \$99.95.

Whilst on the subject of hard to get products, the Arista D25 Gender Changer is also available from us.

There are two types, a male to male or a female to female. The pins are goldplated and the changer is wired straight through.

Cost is \$12.45 for the male to male gender changer and \$12.75 for the female to female gender changer.

RS232 GENDER CHANGER

- Female to female
- Saves modifying or replacing non-mating RS232 cables by changing from male to female to male
- All 25 pins wired straight through
- Gold plated pins



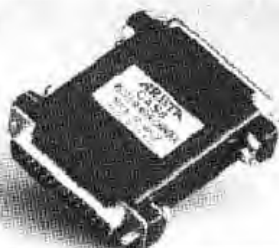
RS232 DATA SWITCH WITH TESTER

- 25 pin RS232 "D" connectors 2 in, 1 out or 1 in 2 out
- Ideal for 2 computers to 1 peripheral or 1 computer to 2 peripherals
- No power required
- 6 dual coloured LED indicators showing certain flow status
- T.D. Transmit Data
- R.D. Receive Data
- R.T.S. Request to Send
- C.T.S. Clear to Send
- D.S.R. Data Set Ready
- D.T.R. Data Terminal Ready
- Housed in heavy duty metal cabinet
- Size: 200(W) x 68(H) x 150(D)mm
- Weight approx. 1.5kgs

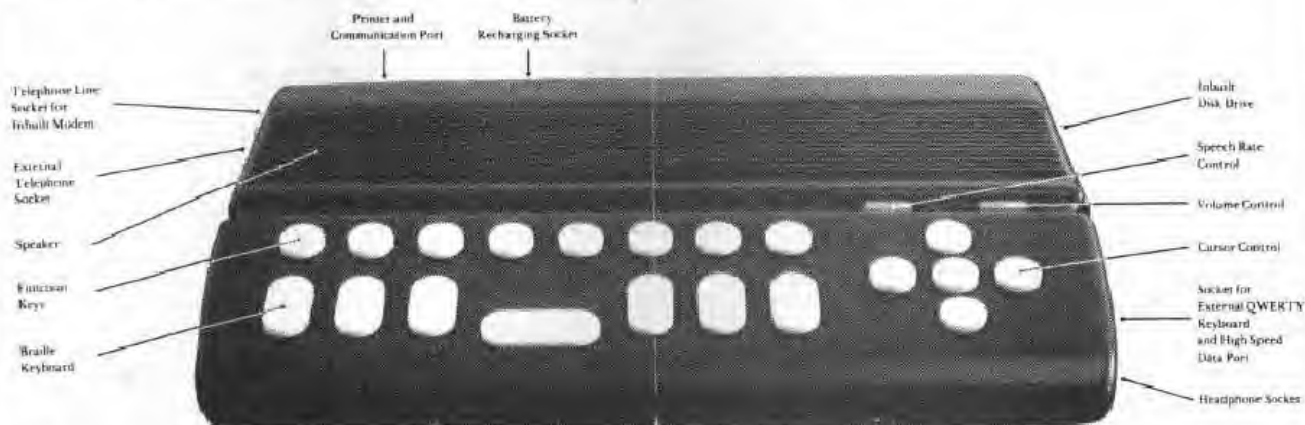


RS232 GENDER CHANGER

- Male to male
- Saves modifying or replacing non-mating RS232 cables by changing from male to female to male
- All 25 pins wired straight through
- Gold plated pins



The Robotron A4 — we want one too!



This is a product we intend to become involved with to a considerable extent.

The Robotron A4 is an electronic secretary for blind people.

At just over \$2000, the unit

- * Has a human quality synthesised speech system

- * Has a disk drive

- * Will take notes at lectures / meetings / on the phone etc

- * Has an inbuilt data base for fast access to your own information

- * Has a professional word processor

- * Has a personal diary for short & long term appointments

- * Has a general purpose calculator incorporating scientific functions.

- * Has an alarm clock, stop watch and calendar

- * Has a Braille keyboard. A QWERTY keyboard can be added as an optional extra

- * Has a music composer for the composition of serious music or something just for fun

- * Has an inbuilt room temperature announcer and speaking voltmeter

- * Has a telephone modem which enables access to a wide range of world services for blind people

- * Has a telephone directory which simplifies telephone access by combining the directory with an auto dialer

- * Has a terminal system so that the Robotron A4 can be used as a terminal for other computers.

- * Has a Basic interpreter and disk operating system to enable the Robotron A4 to act as your personal computer.

The Robotron comes with a headphone socket, the QWERTY keyboard socket, volume control, speech rate control, inbuilt diskdrive, a battery recharging socket, a printer, and communication port, a telephone line socket for the inbuilt modem, a speaker, the Braille keyboard and cursor control.

The only thing I can find against this unit is that it discriminates against sighted people! We want one too!

The Robotron A4 has to be the best value in computing today!

Contact us for more information.

Programs galore

We've previously mentioned this company in relation to the "Easy Access" MS DOS replacement program.

P.C. Accessory Pty Ltd also have a number of other very interesting programs on their books.

Of greatest interest is "The Drawing Tablet", a multipurpose graphics creation program which provides higher quality drawings than can be produced by typical medium resolution drawing packages.

Features include painting, lines, rectangles, squares, triangles, parallelograms, trapezoids and arcs.

The capabilities of this program don't stop there however. If you are interested, the best way to follow up on this program is to contact PC Accessories themselves on 02 440 4721. Please let them know you read about this product here in this magazine.

EASY ACCESS from DACA

EASY ACCESS, from DACA Software, is a menu system for the uninitiated which allows the user to use a PC without a knowledge of the DOS used by most PC's which are complex and can be thoroughly confusing.

The big advantage of EASY ACCESS, however, is that while the PC user may begin with limited knowledge of the system, to simplify the PC's operation, as the user's experience

increases so does the usefulness of EASY ACCESS.

In addition, EASY ACCESS provides some services that the normal DOS does not.

It automatically monitors hard disk usage and assists with other requirements needed for good disk system housekeeping.

A simple security system restricts access to different parts of the system to unauthorised users.

EASY ACCESS, though simple to use, operates with one of the most advanced forms of presentation... pull down menus and full window presentation.

Micro Paper Feeder

One of our Meet Contacts, Arthur Pittard, has invented a very clever device called the Micro Paper Feeder.

It allows you to use single sheet paper in a sprocket type printer.

You can contact Arthur on 02 72 2881, and dealer enquiries are especially welcome at this time.



MARTHA's Trading Post

Some of you computer derros have accumulated so much junk in the past few years, you are becoming a menace to society and a health hazard to your cat.

This is your chance to get rid of those unwanted bits of equipment.

Place your ad here and I'll leave it on till your steam operated modem or whatever gets sold, or I get sick of the sight of your ad.

Martha

For Sale:

- \$ 60: CoCoMax 1-2 Package
- \$ 40: CoCoTewx (For CoCo 2 & 3)
- \$100: Tandy Pascal Compiler
- \$ 25: Musica
- \$ 30: P51 Mustang Simulator
- \$250: Avtek Multi-Modem (Viatel Compatible)
- \$150: Tandy DMP100 printer (still in box)

All software is original including manuals.
Phone David Ly on (067) 7288279

For Sale:

- \$100: CoCo 2 Multipack interface
- \$150: Tandy Deluxe RS232 program pak

Disk Games (\$25 each)

Marble Maze. Paper route. Karate

Tape Games

- Space Shuttle (Tom Mix) - \$10; Quix (Tom Mix) - \$20; King Tut (Tom Mix) - \$20; Shenanigans (Mark Data) - \$20; Space Invaders (Spectral) - \$20; Los Vegas (Prism Software) - \$15; Las Vegas Weekend (Prickly Pear) - \$15; Zaksund (Elita Software) - \$20; War of the Worlds (Part 1, 2 & 3) - \$40

Tape Utilities

- VIP Writer (Tape & Manual) - \$50; RTD Trio (Program transfer Utility: tape to disk to tape and rom pak transfer programs) - \$25

Phone Harry on (07) 411314 after 5pm weekdays and anytime on weekends.

For Sale:

- \$ 15: Cessna Lander Flight Simulator. Requires two joysticks.
- Phone (087) 551591

For Sale:

\$200: 32K ECB Grey CoCo with manuals, inverse switch and shift lock; VIP Writer word processing program (Disk & Tape); about 200 - 300 programs from Rainbow and CoCo including Educational, Music, Graphics, Utilities and more!

Write to: Steve Youngberry,
PO Box 244,
Tara, 4421

For Sale:

\$Make an Offer: 64K ECB Grey case CoCo with real keyboard. It works!

Phone Adrian Jowett on (002) 302358 (work)
or (002) 235352 (home)

For Sale:

\$300: TRS-80 Level 2 and Monitor as new with instruction books, etc.

\$200: 64K ECB CoCo with manuals, books, etc.
All in excellent Condition.

Phone Roy Jackson (02) 523-3473

For Sale:

\$25/\$50 for both: "Dinowars" and "Monster Maze", 2 years old but still in working condition. No instruction book. \$25 for one/\$50 for both.

Phone Aaron Harwood (Tasmania) 344142

or write to 274 Argle St,
Nth Hobart, 7000

For Sale:

\$850: Grey case 64K ECB CoCo, HJ1 57 Keyboard fitted (original chicklet keyboard loose), composite video and audio output card, power on led fitted; CCR 81 cassette recorder; NEC twin disk drives, model PC8032B with controller and RS DOS & Rainbow bits DOS chips; original Telewriter-64 software on tape and disk, Dynacalc, Pro-Color-File and VIP Database on disk; some US Rainbow and CoCoQz on disk and tape, lots of other software on tape and disk; US Rainbow Magazines; Program books, etc etc.

Write to Barry C. Carle,
1 Wendy St,
Morrabin, 3189

Wanted:

\$40: Word Processing program for 64K CoCo. Must be Tape based. Perhaps somebody with Telewriter 64 who doesn't need their tape. I would be prepared to pay 1/2 price of new, say around \$40.

Phone David Phillips on (07) 8072663 evenings

Wanted:

\$make an offer: Digitizer (prefer DS691 from Micro Works, but any other will do)
Call Malcolm Patrick on (086) 457637

○

GOLDSOFT

P.O. BOX 1742, SOUTHPORT. QLD. 4215 Phone (075) 39-6177

Goldsoft Price list as at March, 1987

Please tick ☒ your requirements.

HARDWARE

CoCoConnection: \$206.00 ()
Video Amp: With Sound - \$35.00 ()
Without Sound - \$25.00 ()
The Probe: \$49.95 ()

GOLDLINK

Access Goldlink #642# on Viatel with a 1200/75
baud modem. Annual subscription: \$39.75 ()

SOFTWARE

Magazines, Tapes & Disks

Australian CoCo (Advanced Programs for your CoCo):

Magazines:	Tape () or Disk ()
12 Months \$39.95 ()	12 Months \$123.75 ()
6 Months \$24.95 ()	6 Months \$ 74.25 ()
1 Month \$ 4.50 ()	1 Month \$ 16.50 ()

Softgold (Programs for your CoCo):

Magazines	Tape () or Disk ()
12 Months \$39.95 ()	12 Months \$123.75 ()
6 Months \$24.95 ()	6 Months \$ 74.25 ()
1 Month \$ 4.50 ()	1 Month \$ 16.50 ()

Gold Disk - Available Quarterly:

1 Month: \$16.00 ()

MicoOz Tape (MC-10 Programs for your Mico):

12 Months \$75.00 ()
6 Months \$42.00 ()
1 Month \$10.00 ()

The CoCo3 Tape/Disk:

1 - Tape: \$10.00 Disk: \$16.00 ()
2 - Tape: \$10.00 Disk: \$16.00 ()

"Say the Wordz":

Two Curriculum based speller programs for
your Tandy Speech/Sound Pack: \$29.95
Req. 32K + Tandy Speech Pack ()

Best of CoCoOz - \$16.00

A selection of programs from Australian
CoCo Magazine.

	Tape:	Disk:
# 1 - Education:	()	()
# 2 - Games 16K:	()	()
# 2 - Games 32K:	()	()
# 3 - Utilities:	()	()
# 4 - Business:	()	()
# 5 - Adventure:	()	()
# 6 - Preschool:	()	()
# 7 - Graphics:	()	()
# 8 - Games 16K:	()	()
# 9 - Games 32K:	()	()
#10 - Education:	()	()
#11 - Education:	-	()

BRIC-A-BRAC

Blank Tapes: 12 @ \$18.00 ()
(C-30) 1 @ \$ 2.00 ()
Tape Cases: 12 @ \$ 5.00 ()
Disks DSDD: 10 @ \$20.00 ()
1 @ \$ 2.50 ()

BOOKS

Help (for your CoCo): \$9.95 ()
Mico Help (for your MC-10): \$9.95 ()

BACK ISSUES

Australian CoCo: Sep 84 - Dec 85: \$2.00 ()
Australian CoCo: Jan 86 - Feb 87: \$3.75 ()
Australian Mico: Aug 84 - Dec 85: \$2.00 ()

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LEICHHARDT STEVEN CHICOS 02 580 6207
or GORGE SCHEGARAY 02 580 9664
LIVERPOOL LEONIE DOGGAN 02-607-3791
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BARRY DARTON 02 618 1909
MINTO GRAHAM POLLOCK 02 603 5028
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SYDNEY EAST JACKY COCKINGS 02 344 9111
ALBURY RON DUNCAN 060 43 1031
ARMIDALE DOUG BARBER 067 72 7647
BLAXLAND BRUCE SULLIVAN 047 39 3903
BROKEN HILL TERRY MOONAN 080 88 2382
CAMDEN SEAN MURDOCH 047 74 8291
COFFS HARBOUR BOB KENNY 066 51 2205
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MAITLAND BILL SNOW 049 66 2557
MOREE ALF BATE 087 52 2465
MURDGE BRIAN STONE 063-72-1958
NARBONNE HDS WENDY PETERSON 065 68 6723
NARRONGINE GRAEME CLARKE 068 89 6549
NEWCASTLE LYN DAVSON 049 49 8144
NOVA ROY LOPEZ 044 46 5449
PARKES DAVID SMALL 068 62 2882
PORT MACQUARIE RON LALOR 065 83 8223
SPRINGWOOD JIM HOPPITT 047 54 1474
TARNMOR GARY SYLVESTER 046 81 9318
UPPER HUNTER TERRY GRAYOLIN 065 45 1698
URALLA FRANK MUDFORD 087 78 4391
VAGGA VAGGA CES JERKINSON 089 25 2283
WYONG JOHN WALLACE 043 90 0312

(Stop between numbers b.k. else
a.h.; but, hyphen between = both)

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SANDGATE MARK NIGHELL 07 269 3846
SCANDOROUGH PETER MAY 07 203 6723
WOODRIDGE ALLAN ALLSOP 07 349 1831
AIRLIE BEACH GLEN EVANS 079 46 1284
BIGGENDEN ALAN MERRAN 071 27 1272
BOVEN TERRY COTTON C/O 077 86 2220
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CAIRNS JEFF LARSEN 070 54 7127
DALBY MERRICK TANSKY 074.62.3228
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